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MICHIGAN

AND

ITS RESOURCES.

SKETCHES OF THE GROWTH OF THE STATE, ITS INDUSTRIES, AGRICULTURAL PRODUCTIONS, INSTITUTIONS, AND MEANS OF TRANSPORTATION; DESCRIPTIONS OF ITS SOIL, CLIMATE, TIMBER, FINANCIAL CONDITION, AND THE SITUATION OF ITS UNOCCUPIED LANDS; AND A REVIEW OF ITS GENERAL CHARACTERISTICS AS A HOME.

COMPILED UNDER AUTHORITY OF THE STATE BY HENRY N. WALKER, COMMISSIONER OF IMMIGRATION.

[THIRD EDITION.]

LANSING, MICH.:
W. S. GEORGE & Co., STATE PRINTERS AND BINDERS.
1883.

PREFACE TO THE THIRD EDITION.

The first edition of this pamphlet, which was issued about the middle of December 1881, consisted of 12,000 copies, and was exhausted by the 1st of April, 1882. Its distribution was not forced or indiscriminate, but was made almost entirely in response to applications elicited by announcements of the fact that such a book was in existence. Considerably more than three-quarters of the entire edition was sent out of the State, largely to the Eastern and Middle states. Numerous requests for copies were received from the Western states and territories, from all the Canadian provinces, and from Great Britain. Correspondence on file contains demands for them from every state and territory of the Union.

Soon after the publication of this pamphlet, an epitome of its contents, containing such general information as would be especially useful in a foreign country, was prepared for translation into German, and in March it had been printed in that language and was ready for distribution, embodied in a pamphlet of 48 pages, which was also accompanied by a map of Michigan. An edition of 5,000 copies was printed, which lasted only a year, necessitating a new edition, which was received in July. A similar epitome for use among the Hollanders was prepared early in the fall of 1882, and printed in the Dutch language, in a pamphlet also containing 48 pages and the map. The Holland newspapers of the State have aided very materially in giving it an effective circulation, and citizens of that nationality are rendering great service in sending it abroad. The earnestness with which they have greeted its appearance ensures their hearty coöperation in its purposes. An edition of 3,000 copies was exhausted in February, and of 3,000 copies received in April only 1,000 remain.

A little more than three months after the first had been given to the public, and when the entire edition had been exhausted, the first copies of a second edition of 20,000, enlarged by twenty-two pages and thoroughly revised, were ready for circulation. In this edition the latest statistics concerning the finances, institutions, and leading industries of the State were given, together with new information derived from the federal census of 1880, the latest condition of railroad development, an extended compilation of distances and fares, and many new facts of interest to persons seeking homes in Michigan. The map was also corrected and amended to correspond with the additions made to the text as regards the latest railroad connections, and to exhibit new county seats and villages. It was found later in the year that even this supply had become insufficient, and 10,000 additional copies were printed, making a total issue of pamphlets in the English language up to January 1st, 1883, of 42,000. A further supply of 10,000 copies was ordered in February of the present year, which will be exhausted by the time the third edition is ready for the public. The third edition contains a revision of the financial and educational statistics of the State, and the latest reports concerning its institutions and its leading industries, including the copper, iron, salt, and lumber interests; also a description of the State by counties, which will in a measure answer the numerous requests for information concerning particular localities.

The reception which has been accorded to the first and second editions of this pamphlet, the large correspondence resulting from its publication, the continued daily demand for it, and the avidity with which many who read it desire copies to send to their friends, justify the belief that a more intelligent idea of the greatness of this State has impressed itself upon the public mind than had previously existed. Whatever contributes to a knowledge of Michigan contributes to its growth. Persons having friends in this or any other country who are engaged in a search for new homes, and who will be interested in the information contained in these pages, are requested to send their names and addresses to the Commissioner of Immigration, Detroit.

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MICHIGAN.

The State of Michigan is 9,745 square miles larger than the State of New York; 13,700 larger than Pennsylvania; 17,855 larger than Ohio; 22,565 larger than Indiana; and 2,265 larger than Illinois. The entire area of the six New England States is 7,550 square miles larger than that of Michigan.

When the State was admitted into the Union, less than 50 years ago, it ranked twenty-third among the States in the order of population. It is now the ninth.

The largest body of fresh water in the world forms its northern boundary; the second largest its western; except these two, there are no lakes in Europe, Asia, or America, larger than that which washes its eastern borders; and it has ports on two others. It has a coast line of 1,600 miles—more than half the distance between New York and Liverpool—around which vessels of 2,000 tons may sail without losing sight of its territory. Lying in the embrace of these immense seas, its climate has no equal in the moderation of its temperature in any State or territory situated on the same degrees of latitude east of the Rocky Mountains.

Most of the southern peninsula of the State lies between the same lines of latitude as the State of New York. The shore line of its upper peninsula on Lake Superior is mostly south of the latitude of Quebec. No part of Michigan is as far north as Paris.

It has four thousand five hundred and fifty-seven miles of railroad. Fifty-five county seats out of sixty-seven in the lower peninsula have railroad connections; nine others are lake ports; there are only six which have no outlet either by rail or water, and none of these is more than twenty miles from a railroad. In the upper peninsula there is only one, and in the lower peninsula there are only seven counties, which are not reached by railroad connections already in operation or in process of construction.

The farmers of Michigan have also the assurance of permanent competition in the rates of transportation to eastern and seaboard markets not only by various rival lines of railroad but by natural and artificial waterways. Every dollar saved in reaching consumers is added to the gains of the producer. The reports of the United States Department of Agriculture show that in a series of six years, previous to and including 1880, the average cash value per acre of eight leading productions of the farm, taken together, in ten principal farming States of the West was greater in Michigan than in any other State.

It the order of production Michigan stands first among the States in the growth and manufacture of lumber, first in salt, first in copper, first in charcoal pig iron, certainly second if not first in iron ore, first in its fresh-water fisheries, fourth in wheat, and fourth in wool. It has the largest iron mine and the largest copper mine in the world. Seven-tenths of all the wheat raised in the country is grown in nine States, and only three excel Michigan in the volume of this crop. In the last census year it produced more wheat to the acre than any State in the Union except Colorado, whose total yield was less than a million and a half of bushels, and whose agriculture depends upon artificial irrigation. It is also one of the best fruit-producing States in the Union. All its principal products are staples, for which there must be a constant and growing demand.

The State is practically free from debt. Its public buildings are paid for. It is prohibited by its constitution from borrowing money in excess of $50,000, except in time of war. The entire local indebtedness of all its cities, villages, towns, counties, and school districts is less than ten millions of dollars. Its taxes are low, and one-third of them all is applied to educational purposes.

The school system of Michigan makes education free to all. The primary schools, the Agricultural College, and the University are open without charge for tuition to rich and poor alike. Even in nominations to the Government army and navy schools at West Point and Annapolis it has become an established custom to leave the periodical vacancies open to competitive examination. Young men of every nationality, creed, and condition have precisely the same right to public benefits and equal chances in the race for success.

With all the advantages of a healthy climate, a fertile soil, easy access to home and foreign markets, extraordinary facilities of transportation, a settled society, a generous school system, established institutions, freedom from debt, and a low rate of taxation, there are in the State several millions of acres of unoccupied farming lands, suitable to almost every variety of husbandry, some of them open to settlement under United States and State homestead laws, and all of them within reach of moderate means.

THE STATE—GROWTH, POPULATION, AND WEALTH.

As shown by the geographer of the tenth census the area of Michigan is 58,915 square miles, 605 square miles more than the area of England and Wales. When it was admitted into the Union, in 1837, its population was 174,467, and at the next federal census, taken in 1840, out of twenty-seven States then belonging to the republic it ranked in the number of its inhabitants the twenty-third.

OBSTACLES TO EARLY DEVELOPMENT.

The early development of the territory which forms the State was slow, and in the face of depressing influences. Ignorant and shiftless surveyors, avoiding the labors, and possibly the hazards, of personal explorations, had given false reports of its topography and its resources. Calumnies thus originated, dating as far back as 1815, survived in tradition until a comparatively recent period. Kindred reports concerning the insalubrity of the climate helped to impede the progress of the State. When railroads began to absorb the carrying trade of the country they naturally sought eastern and western connections, uniting the valley of the Mississippi with the Atlantic, and such facilities as the State possessed carried the current of travel through its territory rather than into the recesses of its interior. The great trunk lines have always been united in a common policy to secure the greatest amount of travel to the farthest possible points. Their agents, in the eastern States and abroad, however widely they may diverge in other respects, combine in labors to send those who are seeking western homes beyond Chicago.

ITS VALUE DISCOVERED.

It is only within a very few years that the northern counties of the lower peninsula have been known and understood, except by a few enterprising men, even among Michigan people. The extension of the lumber interests, seeking fresh material for the mills, led to their first thorough exploration, and it was not until those interests had acquired enormous magnitude that the now undoubted fact was realized that, great as had been their profits, the discoveries they had made and the great wilderness they had partially cleared promised more to agriculture than it had yielded to the axe. Immense tracts of hard-wood timber were found containing no pine, and it was found, too, that large portions of our northern territory which produce the best pine produce also the best crops. There are pine barrens bearing an inferior and scraggy wood, which the fastidious lumberman utterly neglects, but these occupy only limited areas in what are known as the pine regions of the State, and cover only a comparatively small portion of its territory. Most of the great trees which constitute the pride of our lumber forests, and have made Michigan pine famous at home and abroad, grow largely among beeches and hard maple and other valuable wood, which only flourish on soils capable of yielding good crops. A few of these noble pines, standing among scores of hard timber, give character to the discoveries of the "land-looker" for the saw-mills, while in no wise detracting from the value of the soil on which they grow. Of course there are different degrees of value in these lands, as in all others, and the settler will exercise the same discretion in his choice as he does in determining other accessories to a home. But there are thousands of acres in Michigan from which pine trees have been cut, as well as many other

thousands which have never borne pine, into the soil of which no ploughshare has ever penetrated, which will well repay the labors of the husbandman, and the fee simple of which can be bought for less than a year's rental of many of the lands of Europe.

ROAD BUILDING.

The policy of the State in constructing public wagon roads in advance of the settlements out of land cessions made by the General Government for purposes of reclamation has been wise and liberal, and has aided largely in opening up the northern counties. Generous land grants were made several years ago by congressional enactment to promote the building of railroads to the Straits of Mackinac, but for a long time some of these grants only retarded settlement by withholding lands from sale, while little progress was made in the work they were designed to advance. This delay is now ended. A line has been for some time in operation connecting Grand and Little Traverse bays with all the great thoroughfares of the country, which has lately been extended to the Straits, while the Mackinac division of the Michigan Central has reached that point since the first edition of this pamphlet was printed. A glance at the map which accompanies this publication will reveal the importance of these lines to the territory they intersect as well as to the State at large, and the magnitude of the great net-work of communications with which they form connections. Across the Straits, and separated only by five miles of ferriage, is the eastern terminus of the recently completed Detroit, Mackinac and Marquette Railroad, which traverses the upper peninsula to points where links will be formed with the great regions of the northwest. A more detailed description of the railroad system of the State is given elsewhere.

AN UNSTIMULATED GROWTH.

No organized effort has been made by the State to promote general immigration. Whatever means have been employed to invite population from abroad have been isolated and fragmentary. The growth of the State has been entirely natural and unstimulated. The result has been to make its people peculiarly homogeneous in character. New elements have been assimilated with marked success and rapidity. The natural resources and attractions of the State, however, have continued to draw people hitherward from other States and from Europe, until the population of forty-six years ago has increased nearly ten-fold. The territory which entered the Union in 1837, with 174,467 inhabitants of both sexes and all ages, sent to its defense less than thirty years later more than 90,000 soldiers. The State which stood twenty-third in rank in 1840 had advanced to the ninth in 1880. A table based upon the returns of the United States census in each succeeding decade tells the whole story:

Table Showing the population of Michigan at each Federal Enumeration since the Admission of the State in 1837, with the Progressive Increase and Rank.

CENSUS YEAR.	Population.	Increase.	Rank.
1837	174,467	.....	.....
1840	212,267	37,800	23
1850	397,654	185,387	20
1860	749,113	351,459	16
1870	1,184,059	434,946	13
1880	1,636,937	452,878	9

THE STATES IT HAS OVERTAKEN.

In this stately march of forty years, Michigan has moved steadily past the older States of Maine, New Hampshire, Vermont, Connecticut, New Jersey, Maryland, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, and Tennessee. In 1860 it was outranked slightly by Wisconsin, and in 1870 by Iowa, but the census of 1880 showed that neither of those great and thriving States was then its equal in population. No State equals it now that did not, forty years ago, contain 80 per cent more in the number of its inhabitants.

The distribution of the population of the State in 1880 over the several counties thereof, is shown in the table which is printed on the face of the map at the beginning of this pamphlet.

WHERE THEY CAME FROM.

Of the total number of inhabitants of Michigan at the enumeration of 1880, there were of native birth 1,248,429, and of foreign birth 388,508. The nativities represented were as follows:

Born in the United States.

STATES.	White.	Colored.	STATES.	White.	Colored.
Michigan	789,445	13,861	Wisconsin	10,717	58
New York	229,240	417	Illinois	9,581	118
Ohio	75,876	1 177	Massachusetts	9,567	24
Pennsylvania	35,745	319	New Jersey	7,859	44
Indiana	17,453	763	All other natives	30,083	3,494
Vermont	12,561	27			
Total Native				1,228,127	20,302

Born in Foreign Countries.

Canada	145,968	Sweden	9,412
German Empire	89,085	Poland	5,421
Ireland	43,413	Norway	3,520
England	43,202	Denmark	3,513
Holland	17,177	All other foreign born	17,066
Scotland	10,731		
Total foreign			388,508

THE FORMATION OF STATE CHARACTER, AND WHO FORMED IT.

The formative period in the character of the people of this State as a political community, and of their institutions, legislation, and habits of action, was the decade between 1830 and 1840. It was during that time that they emerged from a territorial pupilage, to assume the duties and responsibilities of an independent State. It was then they formed their first constitution, adopted their axioms, and founded their traditions. The first convention which met to organize their fundamental laws was composed of pioneers who, in the language of one of their few surviving members, were trying to work out the problem which continues to this day to be exemplified in the financial policy of the State, "earn your money before you spend it." The population of the territory at the beginning of this period was 31,639. When the ten

years had elapsed it was found to have increased nearly seven-fold, its inhabitants numbering 212,267. The rate of increase had been 570 per cent. In no subsequent decade has it exceeded 92 per cent. This enormous accession was the element which stamped the civilization of the State. A large portion of it came from New England —most of it from the rural counties of New York—all of it bore the impress of genuine American thought and character. The institutions of the State, the nature of its laws, the ideas which control popular expressions and the tendency of sentiment which generally prevails, modified in their actual application by the enlarged conditions of a fresh and advancing society, as well as many of the names of its towns and villages, betray the origin of the element which is paramount in Michigan. The characteristics it introduced have never been lost. There have been large and welcome additions to the population of the State from many parts of this country and from most of the countries of Europe. They came to Michigan expecting to find a moral, intelligent, and industrious American State, and they have not been disappointed. The process of assimilation has gone harmoniously forward, and no sectional or national distinctions disturb its citizens of either native or foreign birth. The prizes of business and political success are open alike to both, and even differences of language are lost after the lapse of a generation. But the fundamental sentiments and ideas which formed Michigan character nearly fifty years ago are respected still, and there are few among its people who desire a change.

GROWTH OF THE MANUFACTURING INTEREST.

The expansion of the manufacturing interest of the State is exhibited in the subjoined figures. They are taken from the Census Reports of 1850, 1860, 1870, and 1880. All kinds of manufactures are included except gas in the returns for 1880:

Statistics of Manufacturing in Michigan.

CENSUS YEAR.	Number of Establishments.	Number of Employes.	Capital Invested.	Wages Paid.	Value of Product.
1850	2,033	9,344	$6,563,660	$2,717,124	$11,169,002
1860	3,448	23,190	23,808,226	6,735,047	32,658,356
1870	9,455	63,694	71,712,283	21,205,355	118,394,676
1880	8,873	77,591	92,930,959	25,318,682	150,692,025

INCREASE IN FARMING AND ASSESSED LANDS.

There were 34,089 farms in the State in 1850, in which were included 1,929,110 acres of improved land. "Compared with 1870," the Secretary of State said in his report of December 14, 1880, "the total area in farms has increased 866,974 acres, or 8.58 per cent. Of this increase 785,304 acres are in the counties north of the southern four tiers. The area of improved land in farms is 1,128,252 acres greater than in 1870, of which 552,460 acres are in the northern counties. In other words, in that portion of the State known as Northern Michigan, which is here taken to include all counties north of the southern four tiers, where ten years ago the total area in farms was only 1,923,550 acres, and the improved lands in farms only 411,217 acres, there is to-day an aggregate acreage in farms of 2,708,854 acres, and the improved land amounts to 963,677 acres." This was said more than two years ago. The number of farms in 1882 was 124,684, containing 11,531,604 acres, of which 6,694,059 were improved. This increase is steadily going forward. A very considerable amount of land has been taken up for agricultural purposes in the upper peninsula, and the

indications point to a more rapid settlement of all the northern portions of the State than ever before.

There were assessed for taxes in 1861, 15,160,710 acres. In 1871 the number of acres assessed was 20,515,388; in 1881 it was 29,306,820. The rate of increase during that decade was more than 42 per cent. The total number of acres in the State, including the large extent of mineral lands on Lake Superior and 784,000 acres covered by inland lakes, is 37,705,600.

AVERAGE SIZE OF FARMS.

The average size of the farms in Michigan is a fraction over 92 acres. The significance of this showing will be better appreciated in those countries of Europe where large land-holders engross most of the soil and the actual farmers are only tenants. Here tenant-farming is little known. Instances in which the use of land is paid by dividing its yield are not infrequent, but leases of any considerable area under a fixed money rental are rarely made. Whether large or small, in the general rule, the farmer's fields are his own.

THE PRODUCTS OF A YEAR.

The natural products of the State in 1879 were estimated by Governor Jerome in his message to the Legislature at the beginning of 1881 to amount to a valuation of nearly one hundred and seventy millions of dollars, made up of the following items:

Agricultural products	$88,500,000
Timber	60,000,000
Copper	8,000,000
Iron	10,000,000
Salt	2,000,000
Fish	1,000,000

THE REALIZED WEALTH OF THE STATE.

The constitution of 1850 required the Legislature to provide "for an equalization by a State Board in the year 1851; and every fifth year thereafter, of assessments on all taxable property except that paying specific taxes." The statements made by this board at each successive meeting indicate the progressive increase in the amount of taxable property. The valuations it has established during the thirty years of its existence have been as follows, the figures representing both real and personal estate. An extra session was held in 1853 to revise the action of 1851:

1851	$30,976,270
1853	120,362,474
1856	137,663,009
1861	172,055,808
1866	307,865,842
1871	630,000,000
1876	630,000,000
1881	810,000,000

The general depression prevailing throughout the business of the country between 1873 and 1876 caused large depreciation in the values of many kinds of property, and left the valuation of 1876 the same as that of 1871. During the last five years the mining and navigation interests have revived, pine lands have increased in value, manufacturers have largely extended their scope, real estate has enhanced its prices, and business of all kinds has attained an unprecedented prosperity. The advance of nearly 30 per cent in the valuation of taxable property in that period fairly represents a legitimate growth.

A very large amount of the property of the State is excluded from its assessed valuation. All the railroads, aggregating over four thousand miles in length, with their rolling-stock, machine shops, and other accessories, all iron and copper mines, and some other corporations, pay taxes at specific rates, and are out of the scope of the assessment officers. All houses of public worship and cemeteries; the personal property of all library, benevolent, charitable, and scientific institutions, and such real estate as they may actually occupy; the public property of counties, cities, villages, townships, and school districts actually used for corporate purposes; property of the State and of the United States, including unoccupied lands; land grants made to promote public communications (for limited terms), and liberal allowances of household goods are exempt from taxation. It was the estimate of Gov. Croswell in his retiring message to the Legislature, January, 1881, that, including the interests which pay specific taxes and those which are exempt from taxation, the aggregate property of the State was not less than Twelve Hundred Millions of Dollars.

LABOR AND ITS INDUCEMENTS.

There is nothing in either the soil or the climate, or other natural advantages of Michigan, which exempts those who settle in the State from the common conditions of success in every part of the world. If a man without means chooses to lead an idle and thriftless life, he can starve to death here as soon as anywhere else. But there is no portion of the Union, either in the States or territories, which offers larger encouragement to industry and economy. The laborer, seeking employment with an honest desire to earn a living, and willing to render a fair day's work for a fair day's wages, can always, under ordinary business conditions, find something to do for which he will be well paid. A few years of labor and frugality, in which steadiness and growing experience will, as in every other pursuit, enhance from year to year the value and compensation of his services, will ensure savings enough to buy land. If he has chosen one of the newer sections of the State for his residence he may readily secure a farm in the neighborhood to which he has become accustomed, at low prices and on easy terms, and the same qualities which gave him a start will establish his prosperity and independence on a sure and enduring basis.

It is not alone the work of the farm that affords openings to labor. The mines, furnaces, lumber camps, mills, manufactories, and mechanic arts of the State, continually increasing in number and variety, furnish a growing and diversified demand for every kind of employment that a man can pursue either with his head or his hands. And there is no region on earth where brains and muscle can work more advantageously together.

THE INDUSTRIES OF MICHIGAN.

Although agriculture is the chief producing interest of this State, and engages the attention of the largest share of its people, fertile farms and prolific orchards have not alone contributed to its prosperity. Noted for its wheat, its wool, and its fruit, it is also the first of the United States in its production of lumber, salt, charcoal pig iron, and copper, and in the extent of its fresh-water fisheries, certainly first in the value and probably first in the amount of its yield of iron ore, and among the most advanced in its general manufacturing and commercial development. While a few States excel it in the volume of their crops, and some in the aggregate of their industrial statistics, none can equal it in the magnitude and diversity of its resources, taken together. Its forests, mines, mills, and factories, while offering employment to all grades of labor, from the unskilled worker with the pick and shovel to the most expert mechanic, also create a large and constant local demand for the farm products of the State, and thus doubly promote the general progress. The full extent of the invitation Michigan thus proffers to the laborer and the artisan in search of work and to the farmer of small means who desires to purchase new lands, and to secure a home market for his surplus produce, can be best made plain by brief accounts of the history and condition of its leading industries.

LUMBER.

Before the axe of the lumberman commenced its work on the forests of Michigan, the northern part of its lower peninsula surpassed any known region of the same area in the richness of its stock of timber. Interspersed with the best varieties of pine were extensive growths of oak, maple, beech, ash, walnut, cherry, whitewood, hickory, and elm, while the less valuable cedar, hemlock, basswood, and tamarack grew, in some sections, in equal abundance. In the upper peninsula pine existed also in large quantities, and broad tracts of hard wood invited the erection of furnaces for the manufacture of the best grades of charcoal iron. Magnificent forests of hard timber covered the greater part of the southern counties, now so rich in agricultural wealth. A more comprehensive account of the timber resources of the States is printed on succeeding pages, from the pen of Prof. W. J. Beal, the accomplished botanist of the Agricultural College.

Much of the timber product of the State has been of an exceedingly superior quality. Its cork pine ranks among the best of the soft woods, and commands the highest market price. Its common grades of white and Norway pine are of standard value, while its harder woods are in demand in the ship-yards, factories, and cabinet shops of this and the European continent. Two-thirds of the best lumber sold in the markets of New York, Philadelphia, and Boston goes from its mills, which also supply the heavy building demands of this and neighboring States, especially the prairie States; and it exports annually to foreign countries large shipments of hewn oak and pine timber, staves, and veneering stock.

THE CHIEF MANUFACTURING INTEREST OF THE STATE.

For more than a score of years lumbering has been the chief manufacturing interest of Michigan, and no American State equals it at the present time in the extent and

value of its lumber product. The State has never collected and compiled the annual statistics of this industry, and the most trustworthy sources of information upon the subject are the elaborate publications of journalists connected with papers representing that interest, or issued at the centers of the manufacture. Even these are deficient in statistics covering the trade in spars, staves, heading, and long timber, and the thousands of cords of fuel chopped and sold annually have gone unrecorded, as also have the heavy shipments of railroad ties, cedar telegraph poles, piles, paving blocks, spool stock, and hard woods for the furniture maker. But since 1863 the statistics of the manufacture of pine into lumber have been gathered with intelligence and thoroughness.

ITS GROWTH AND MAGNITUDE.

The history of this great industry covers a period of only about thirty years. In 1854 the Hon Wm. L. Webber, of East Saginaw, made the first estimate of the extent of the operations of Michigan lumbermen, whose activity was then chiefly confined to the valley of the Saginaw river. He reported the existence of 61 mills, many of them using water-power, and placed their entire annual product at but 108,000,000 feet. Eighteen years later, in 1872, it was estimated that the lumber product of Michigan for twelve months included 2,560,000 feet of oak timber, 12,700,000 staves, 300,000,000 lath, 400,000,000 shingles, and 2,500,000,000 feet of sawed pine. The number of saw-mills in the State at that time was about 1,500, employing more than 20,000 persons, and representing $25,000,000 of capital. There were also 200 shingle-mills and 80 stave and hoop factories with an annual product of $4,000,000 in value. The lumber trade suffered materially during the following years of commercial depression, but in 1879 the total amount sawed in this State reached 3,100,000,000 feet, and Gov. Jerome in his inaugural message estimated the value of the entire timber product of that year at $60,000,000. The product of 1881 is estimated by the lumber journals to have been:

Lumber Product of 1881.

LOCATION.	No. Feet.
Upper Peninsula	450,000,000
The Saginaw Valley	1,011,000,000
The Lake Huron Shore	326,000,000
The Lake Michigan Shore:	
Manistee	225,000,000
Ludington	120,000,000
White Lake	120,000,000
Muskegon	632,500,000
Grand Haven and Spring Lake	191,000,000
Miscellaneous	75,000,000
Interior Mills:	
Chicago & West Michigan R. R.	65,000,000
Grand Rapids & Indiana R. R.	196,000,000
Detroit, Lansing & Northern R. R.	84,000,000
Michigan Central R. R.—Mackinac and Bay City Divisions	85,000,000
Flint & Pere Marquette R. R.	145,000,000
Miscellaneous	200,000,000
Total	3,919,500,000

This large total is that of sawed pine lumber alone and is exclusive of shingles, lath, staves, and long timber, whose product possesses an annual value of many millions. An ingenious calculation shows that the work of the Michigan mills during

that year in sawed lumber would load a train of cars 2,470 miles in length, each car carrying 10,000 feet and occupying 33 feet of track, and would build a city of handsome frame houses capable of furnishing comfortable homes for more than a million of people. The aggregate value of the forest products of this State already marketed is in excess of $1,000,000,000. These totals far outstrip those of any other timber-producing State, or of any country of like area.

FACILITIES FOR TRANSPORTATION.

The numerous lakes, rivers, and small water-courses which form such salient features in the topography of Michigan, have been and are of inestimable value to many interests, but to none more than those of the lumbermen. They have borne myriads of logs from the forests along their banks to the booms of mills located at convenient shipping points, and this economical transportation has added millions to the profits of the business, and greatly aided its remarkable development. Within a few years the disappearance of the valuable pine along some of the streams and the necessity of access to the remoter tracts of timber have led to the construction of small logging railroads in many portions of the lower peninsula, which possess an aggregate length of several hundred miles, although few of them are incorporated under the general railroad law. In all instances, it is believed, they have proved profitable.

DIVERSITY OF LABOR EMPLOYED.

A brief description of the methods of lumbering followed in Michigan will illustrate the diversity of labor employed. The felling of the trees is the work of the winter, when snow-clad ground and frozen streams facilitate the transportation of supplies into the forest and the hauling of logs. Camps are pitched at convenient points in which the axemen and teamsters live during the chopping season, the abundance of material making the construction of comfortable quarters easy and economical work. The cut timber is carried on sleds to the banks of some convenient stream or to the track of a logging railroad. In the latter case it is taken to the mill on flat cars, as needed, or transported to the shore of the great lakes and rafted, uncut, to ports hundreds of miles away. In the former instances the high water and strong currents of the spring freshets are used to carry the logs down the streams to points where it is possible to ship lumber to other markets by rail or lake, and where, as a consequence, the mills will be found. There the logs are received and secured in strong booms, controlled by local corporations, the managers of which attend to their delivery at the private booms of their owners, whose property is easily designated by their special marks. Sawing, yarding, and shipping require the labors of other and distinct classes of workmen.

THE GREAT CENTERS OF MANUFACTURE.

The distribution of the lumber manufacture of Michigan is determined by its rivers and railroads. Below the valleys of the Saginaw and the Grand, little else than a mere local trade now exists. The Saginaw receives the waters of the Tittabawassee, the Cass, the Flint, the Shiawassee, the Bad, the Pine, the Chippewa, the Tobacco, and their numerous tributaries, draining a vast and magnificently timbered region. At its mouth are the thriving towns of Bay City and West Bay City; sixteen miles above, at the head of steam navigation, are Saginaw and East Saginaw. At these cities and in the flourishing villages between them are collected the finest lumber manufacturing establishments in the world, whose total yearly product surpasses that of any other single district. The river which brings the logs to their booms also bears large vessels to their docks, and they have under absolute control all the advantages of cheap

water transportation. The Saginaw valley is also connected by several first-class lines with the railway system of the continent, and with this multiplied outlet commands access to all the markets of the world.

The Lake Huron shore, including Saginaw Bay, counts its saw-mills by the hundred. The Au Sable and Thunder Bay are important logging rivers of that part of the State, and lumbering is also extensively carried on along the Rifle, the Aux Gres, the Cheboygan, the Black, and many smaller streams. Alpena, Tawas City, East Tawas, Cheboygan, Oscoda, Au Sable, Harrisville, and Black River are important manufacturing or shipping points.

The chief lumbering rivers emptying into Lake Michigan are the Muskegon, the Manistee, the Grand, the White, and the Pere Marquette. Many millions of feet are also cut annually along the banks of the Kalamazoo, the Paw Paw, the Grand, the two Sables, the Aux Becs Scies, the Pentwater, and other lesser streams. The Muskegon, after draining a broad valley extending far into the interior, expands into a handsome lake close upon the shore of Lake Michigan. No natural provision could be more favorable for the handling of logs and the shipment of the sawed product, and the city of Muskegon, located upon the south shore of the lake, has the distinction of annually cutting more lumber than any other single city in the world. Manistee possesses a similar eminence in the manufacture of shingles. Benton Harbor, St. Joseph, Grand Haven, Spring Lake, Saugatuck, Montague, Whitehall, Pentwater, Ludington, Frankfort, Elk Rapids, and Traverse City also contribute to swell the total of the forest products of the Lake Michigan shore.

There are many inland towns, situated upon railway lines, which are important centers of this industry; among them are Flint, Lapeer, Evart, Big Rapids, Cadillac, Midland, and Farwell.

Lumbering is yet in its infancy in the upper peninsula, but the value of the sawed and square timber product of that region in 1881 must be estimated at over $4,000,000. Saw-mills are scattered along the shores and the railways of Menominee, Delta, Mackinac, Marquette, Schoolcraft, Baraga, Houghton, and Ontonagon counties, but the chief centers of lumber production in that section of the State are Menominee, Escanaba, Manistique, St. Ignace, Ford River, and Munising.

THE LUMBER BUSINESS OF THE FUTURE.

The impression that Michigan is showing signs of exhaustion as a timber-producing State is without adequate foundation. Forestry Bulletin No. 6, issued by the United States Census Bureau on December 1, 1881, contained this estimate of the amount of merchantable timber standing in Michigan on May 31, 1880:

Standing White Pine in Michigan in 1880.

LOCATION.	Feet, Board Measure.
On basins of streams flowing into Saginaw Bay	7,000,000,000
" " " Lake Huron	8,000,000,000
" " " Lake Michigan, (lower peninsula)	14,000,000,000
In Menominee River Valley	1,600,000,000
In Schoolcraft, Chippewa, Mackinac, and Delta counties	2,400,000,000
In remainder of the upper peninsula	2,000,000,000
Total	35,000,000,000

Standing Hard Wood in Michigan in 1880.

LOCATION.	Cords.
Lower Peninsula	575,500,000
Upper Peninsula	124,500,000
Total	700,000,000

The pine timber was distributed over about 8,000,000 of acres, and the hard wood over about 30,000,000. This Bulletin also estimated that Michigan contained 7,000,000,000 feet of hemlock lumber with 7,000,000 cords of bark, and an aggregate of nearly 70,000,000 cords of white and yellow cedar and tamarack. These census figures are regarded as under rather than over-estimates by men who have carefully examined the subject.

Some well informed lumbermen believe that ultimately the hard wood product of Michigan will approach in yearly value the generous figures that now represent the gross earnings of the pine lumber trade. Certainly the time is not far distant when hard wood saw-mills must become common, and the innumerable industries into which such timber enters must rapidly multiply. For years to come Michigan will keep its rank as the great timber-producing State, and this interest will continue to furnish profitable investments for capital, remunerative employment for the laborer, and a sure home-market for the produce of the pioneer farmers.

SALT.

Long prior to the settlement of Michigan by white men, the Indians supplied themselves with salt from the saline springs of the Saginaw valley, and those who conducted the early topographical and geological surveys of the State predicted that systematic exploration would reveal the existence of subterranean stores that might be developed into great commercial importance. Spasmodic attempts to manufacture salt were made even under the territorial government, but without success.

DEVELOPMENT AND GROWTH OF THE SALT INTEREST.

Shortly after the State was organized its legislature made a series of appropriations to meet the expenses of a thorough examination of its saline resources by Dr. Douglass Houghton. His work was valuable in many respects, but did not yield conclusive results, and for five years after his death the subject received but little public attention. Private enterprise, stimulated at the outset by a small State bounty, finally added salt to the staple products of Michigan. In 1859-60, the East Saginaw Salt Manufacturing Company sank a well at that city to the depth of about 650 feet, and was the first to obtain brine in paying quantity and quality. Thenceforward the development of this industry was rapid and decisive. Greater progress was made by it in four years than was made in the Kanawha valley in fifty, and in five years its product equaled that reached by the Onondaga salt springs of New York in the forty-second year of the existence of the works near Syracuse.

THE LARGEST SALT-PRODUCING STATE.

Of late the Michigan product of salt has largely exceeded that of any other State,

and in the inspection year ending November 30, 1882, it amounted to 3,037,317 barrels. This was manufactured by 126 salt blocks and 4,500 solar covers, having an estimated annual capacity of 3,590,000 barrels. From the comparative statement of the salt industry of the United States for the census year 1880, published by the National Census Bureau, August 8, 1881, these statistics of the principal salt-producing States are taken. It will be seen that the value of the product in this State was nearly double that of New York, while the capital employed was nearly $140,000 less.

Principal Salt Products of the Census Year 1880.

STATES.	Value of Product.	Average Strength of Brine.	Average No. of Employes.	Wages Paid.	Value of Materials Used.	Capital Invested.
Michigan	$2,271,913	91¼	1,268	$540,902	$1,009,733	$2,147,209
New York	1,106,740	69½	1,010	274,087	507,120	2,286,081
West Virginia	380,369	35¾	736	160,227	192,113	909,500
Ohio	363,791	36 4-5	451	105,261	202,543	832,600
Pennsylvania	177,415	28	137	52,047	74,047	234,500
Virginia	127,678	86	76	14,219	39,000	1,000,000
California	121,950	.....	184	49,120	18,495	365,650

CHEAP TRANSPORTATION AND ECONOMICAL PRODUCTION.

The preëminence of Michigan as a salt-producing State is due to a combination of causes. The abundance and superior strength of its brine do not alone explain it; neither does the fact that the careful inspection by State authority through a series of years, has as a rule, kept its salt unsurpassed in chemical purity and in preserving qualities. The fortunate location of the wells upon the shores of navigable waters has given this industry the advantages of cheap transportation and easy access to markets in all the central and northwestern States. Still more important is the economy with which the salt blocks are worked. In connection with saw-mills their operation involves a large saving of expense. Power is furnished by the same engines; the evaporation of the brine is forced, during the day, by the exhausted steam from the mills, and during the night by live steam generated in the boilers by burning the refuse slabs and sawdust; and the barrels are made of staves cut from the rejected lumber and slabs. By this system a superior salt is obtained at a minimum cost of manufacture. The same advantages cannot fail to accrue to the salt trade of the State in its competition with other States hereafter.

CHIEF CENTERS OF MANUFACTURE.

The chief center of the salt manufacture is the Saginaw river, and the blocks on its banks produce about three-fourths of the entire yield of the State. There are also salt blocks at Caseville, Port Crescent, Port Austin, New River, Port Hope, Sand Beach, and White Rock, in Huron county; at Oscoda, East Tawas, and Tawas City, in Iosco county; at St. Louis in Gratiot county; at Midland, and at Manistee. The latter is the pioneer district of the Lake Michigan shore, and was developed in 1881.

HOW IT IS MADE AND WHERE IT IS SHIPPED.

No rock salt has been found in the State, and the brine is procured by boring deep wells and pumping The salt is obtained by evaporation, and steam is mainly used for this work, although the solar process is employed by a few companies. All the product is carefully inspected and branded by officers appointed by the State, and the purity of the brine and the perfection of the methods of manufacture are such that

the yield of 1882 did not contain two per cent of second quality salt. The bulk of the Michigan salt is shipped to Chicago, but it also finds distributing points at Milwaukee, Racine, Duluth, Detroit, Toledo, Sandusky, Cleveland, Dunkirk, Erie, St. Louis, Cincinnati, and Hannibal, Mo. Of late it has been shipped by rail as well as by water.

WHERE THE BRINE COMES FROM.

The chief reservoir of Michigan brine is a series of sandstones and shales, from 1,000 to 1,200 feet in thickness, called by geologists the Waverly group It is a sea-coast rock, in which the prints of sea-weeds and the fossil remains of enormous marine growths are found, and is saturated, sponge-like, with the brine. Presumably centuries ago the waves of a pre-Adamite ocean broke upon that shore, and impregnated it with its saline riches. In his inaugural message Gov. Jerome said: "The salt-producing territory of Michigan as now developed covers over 8,000 square miles; * * it is fair to presume that the supply is inexhaustible, and the increase in manufacture will continue as the demand increases with the growth of the great West."

The average depth of the Saginaw wells is about 900 feet. Productive wells elsewhere have been sunk to distances ranging from 1,000 to 2,000 feet, and they indicate other brine-carrying basins belonging to another group which will reward deeper borings. The brine is easily pumped, and the yield of the wells varies from 12 to 20 gallons per minute. A single well has yielded 26,000 barrels of salt in a manufacturing season of eight months, and the annual product of some companies has reached 120,000 barrels.

READY MARKETS AND GENERAL USE.

The best qualities of Michigan salt sell promptly for dairy and family use, and are especially adapted to the wants of packers of meats and fish. The inferior grades are branded as such and sold for salting stock and hides and similar purposes, while an increasing market has opened for refuse salt as a fertilizer. Shipments in bulk and in sacks have recently begun. The bitter waters which are drained off in the processes of manufacture contain valuable ingredients; the bromine of pharmacy and the arts is now largely obtained from this source.

A PERMANENT SOURCE OF WEALTH.

The salt interest of Michigan can be safely pronounced a permanent source of wealth. Subterranean explorations are being made in widely scattered parts of the lower peninsula—in Berrien, Muskegon, Alpena, Cheboygan, and other counties—with promising prospects. Under a general enabling act passed by the last Legislature, an underground pipe-line nine inches in bore and twelve miles in length was laid during 1881 between the salt wells of East Tawas and the lumber mills of Oscoda, with the expectation that it would supply brine enough for the daily manufacture of 1,000 barrels of salt. A fine salt bed has been recently discovered at Marine City, in St. Clair county.

The development of this great interest is yet very far from its maturity.

The average net price obtained for Saginaw salt by the manufacturers during the inspection year of 1882 was 70 cents per barrel.

COPPER.

The early descriptions of Lake Superior likened that monarch of fresh-water seas to a bent bow, partly across which, in the similitude of a broken arrow, stretched the long and narrow Keweenaw Point. The backbone of that peninsula is a picturesque

mountain range of trappean rocks, possessing an average elevation of 600 feet above the lake level, but rising in occasional peaks to double that height. This Mineral Range, whose northern and western slopes, as a rule, closely skirt the lake shore, has a length of 150 miles, varies from four to seven in width, and is flanked on the east and south by a comparatively low and level country. It contains the richest copper mines ever discovered, which yields five-sevenths of the entire product of the United States, not in the form of an ore, but of a virgin copper, chemically pure for all practical purposes, as it lies in the vein and ready for the market when freed from its matrix. This copper is distributed through the rocks in three forms, viz.: In immense masses, or in ragged, root-like pieces called "barrel-work," or in small scattered particles known to miners as "stamp stuff." It is mined by means of deep shafts and connecting galleries, and when brought to the surface is separated from the rock by being first washed under the ponderous hammers of the stamp mills and then subjected to the fires of the smelting furnace. The product is sold both in Europe and India, and commands the highest price at home and abroad, especially for conductivity wire and cartridge metal.

COPPER MINING ON LAKE SUPERIOR.

The history of Lake Superior copper mining has been a series of geological surprises. Originally it was not believed by scientific men that pure copper could be taken from the earth in profitable quantities. Ultimately, however, huge masses of native metal were found in the Mineral Range in veins crossing at varying angles the prevailing strata of the mountain formation; they seemed to fill immense cracks penetrating the general rock system, and hence received the name of fissure veins. The first successful mine, the Cliff, was located upon one of these fissure veins, and they at once became the object of eager search by the prospectors. A little later other veins were found running with and not across the strata, and one of these yielded the then unsurpassed product of the Minnesota, the mining wonder of the years from 1855 to 1862. At about this time rich deposits of copper, not in masses but in small particles, were also discovered in the amygdaloid rocks which belong to the general mountain system, and are technically called "lodes." The original theory that the fissure veins were alone copper-bearing, was in the face of these discoveries permanently discarded. Twenty years ago the belts of tough conglomerate were considered valueless for mining purposes, yet, since 1870, the Calumet and Hecla has been annually taking from the conglomerate of its locality many more tons of copper than the yearly product of the entire peninsula prior to the date of its opening.

That copper existed on the shores of Lake Superior has been known for two centuries. The fact is mentioned in the journals of the early explorers and preserved in the traditions of the Indians. Abundant and interesting traces of ancient mining have been found on Keweenaw Point and Isle Royal.

EARLY PAYING MINES.

It is now forty years since Dr. Douglass Houghton, whose name is lastingly and most honorably identified with the history of northwestern development, presented to the Legislature his report upon the geology of the upper peninsula, the product of ten years of persistent and thoroughly scientific labor in an unbroken wilderness. It first asserted that the mineral wealth of the southern shore of Lake Superior offered a profitable field to enterprise and capital, and placed on record prophecies as to copper since amply fulfilled. Numerous exploring parties were soon busy on the Mineral Range, and in 1846 the fissure vein of the Cliff mine, near Eagle river, was yielding a remunerative product, the regularity of its dividends for many years proving a source of constant encouragement to struggling enterprises along the peninsula. Two years later the Minnesota commenced work, back of Ontonagon, upon the enormous masses of copper, one of them about five hundred tons in weight, which made it the bonanza

mine of the day. Exploration was eventually pushed to Portage lake, and the district to which it gives its name is now the busiest center of the copper-mining interest as well as the most prosperous. The lake forms a spacious and accessible harbor, open by costly water ways to the largest vessels navigating the lakes; upon it lie the flourishing towns of Houghton and Hancock. Both shores of the Keweenaw peninsula are connected by this harbor and its inlets, and supplies for the mines as well as their products find easy transportation through the facilities thus afforded.

THE RICHEST COPPER MINE IN THE WORLD.

About 1865 the Calumet conglomerate was discovered 12 miles from Portage lake, and the annals of mining enterprise contain no parallel to the history of the consolidated company now known as the Calumet and Hecla. With a total assessment for all purposes upon its share-holders of less than $1,000,000, it has built up a vast industry employing over 2,000 men, supporting two flourishing villages with a population of more than 5,000; has expended a vast amount of money in stamp-mills, machinery, and permanent improvements, and possesses a dividend account which exceeds the magnificent total of twenty millions of dollars. More than one-third of the entire copper product of the upper peninsula has been taken from its levels. No mine, of any description, has ever returned such large *pro rata* dividends to its share-holders. The great Burra-Burra mine of South Australia did not yield, during the twenty-one years of its profitable existence, as much pure copper as was taken from the Calumet and Hecla in 1880 and 1881. It pays quarterly dividends of $5 per share on 100,000 shares, with great regularity, and its stock, the par value of which is $25, was quoted on June 14th, 1883, at $241. Its total product of refined copper in 1882 was about 28,000 tons, or one-sixth of the estimated annual production of copper in the world.

PROFITABLE MINING—COMPARATIVE PRODUCT OF PRECIOUS METALS.

Between the opening of the first mine and the close of 1882, the Lake Superior copper districts produced 356,000 tons of refined copper, representing a value in market of not less than $163,000,000. The total output of 1882 was about 28,500 tons, taken from twenty-eight mines, and valued at $10,466,000.

In this connection it may not be amiss to compare the foregoing figures with the results obtained from the investment of a very much larger amount of capital in mining for the more precious metals in the western States and Territories. The Commissioner of Mineral Statistics finds that the copper district of Michigan, alone, leads all the other States and Territories in the amount of dividends paid in 1882, the amounts paid by mines located in the several States and Territories having been as follows:

	1882.	TOTAL TO DATE.
Arizona	$1,962,500	$5,927,500
California	1,715,408	14,617,407
Colorado	2,040,650	4,195,650
Dakota	957,500	3,172,500
Georgia	48,000	80,000
Idaho	47,000	47,000
Michigan	***2,900,000***	***28,215,000***
Missouri	80,000	390,000
Montana	309,115	746,615
Nevada	733,262	11,399,599
New Mexico	204,375	204,375
North Carolina	8,000	8,000
Utah	2,135,000	6,633,000
	$13,140,810	$75,636,646

In the foregoing list all mines have been omitted which have not paid any dividends since 1881. Adding dividends paid by mines previous to 1881, and we have a grand total of $35,270,915 as the net earnings of the copper mines of Michigan, since the commencement of mining operations.

THE COPPER DISTRICTS OF MICHIGAN—NEXT TO CHILI THE CHIEF SOURCE OF THE WORLD'S SUPPLY.

The copper mines of Lake Superior form four districts, viz.: the Ontonagon, located at the base of Keweenaw Point, and yielding now but small returns; the Keweenaw, covering the northern extremity of the Point, and containing the rich fissure veins; the Portage lake, with the great productive mines; and Isle Royal, a narrow, rocky island near the north shore of the lake. Copper and copper ore have been found elsewhere, but not in sufficient quantities to invite systematic mining. Thriving towns have clustered about the mining locations; two capacious ship canals aid in the transportation of their product and of supplies; and the day is not far distant when the now isolated Mineral Range railroad will be connected with the great railway system of the continent. The machinery which facilitates the subterranean work in the larger mines, handles the mineral, and crushes the tough rock, is not surpassed in power and ingenuity of design by that of any mining country. The upper peninsula of Michigan divides with Chili the honor of being the chief source of the world's supply of copper. Its product exceeds that of Spain, and is far greater than the yield of Australia or of the famous Cornish mines of England. This industry is now in a most flourishing condition, and the prospects of the future are described in this extract from the first report of the State Commissioner of Mineral Statistics:

"Mining in the copper rocks of Lake Superior must be regarded as in its infancy. Not one thousandth part of the trappean or copper range is known or has been minutely explored. The mines of Cornwall have been worked for a thousand years, new discoveries have been made as old ones were exhausted. No one who has paid any attention to the developments in this region can doubt for a moment that a great, profitable future lies open, and that centuries hence the copper mines will be worked by a populous, intelligent, and prosperous community, educated in our common schools and mine colleges, and made happy by the perpetuated blessings of civil and religious liberty."

IRON.

The discovery of the valuable iron ore deposits was not due to the narratives of early travelers, nor to geological exploration, but was the unforeseen result of the eager search for copper which followed Dr. Houghton's report of 1841. That paper merely said: "Although hematite ore is abundantly disseminated through all the rocks of the metamorphic group, it does not appear in sufficient quantity at any one point that has been examined to be of practical importance." In 1844 the attention of the United States surveyors, who were at work about the present site of the city of Negaunee, was drawn by the unusual variations of the needles of their solar compasses to outcroppings of magnetic iron ore. In the next year the agents of a copper mining company which had been formed at Jackson, explored the same region, and, becoming convinced that iron ore of merchantable quality was present in large quantity, secured what is now known as "the Jackson location." The first ore, three hundred pounds, was taken from this mine in 1846, and was smelted in the following winter in an old forge on Cucush prairie. The first iron made upon Lake Superior was in 1848, near Carp river. In 1849 the first opening was made at the location of the Cleveland mine, near Ishpeming, and in 1850 a few tons of ore were taken to Newcastle, Pa., and made into bloom and bar iron, the quality proving excellent. In 1852 seventy tons of the Jackson ore were manufactured into pig iron at Sharon, Pa., and the attention of iron masters in Pennsylvania and Ohio was then more generally drawn to this new field of supply.

THE SAULT STE. MARIE CANAL.

It was in 1852 also that Congress granted to Michigan 750,000 acres of land to aid in the construction of a canal around the rapids of St. Mary's river. This was accepted in the following February, and a contract was promptly executed with an association of eastern capitalists who pushed on their task with vigor in the face of many obstacles. As a result the State, in 1855, threw open to lake commerce the Sault Ste. Marie Ship Canal, a magnificent enterprise, representing an original outlay of $1,000,000. It has been of vast benefit in developing the great industries of the upper peninsula. Within the last ten years it has been materially enlarged by the general government, to which it has been ceded by the State on condition that it shall be kept as a free national highway. With the opening of this canal commenced a new era in the mining history of Lake Superior. It was now possible during the season of navigation to readily reach a base of supplies and a market, and the growth of the country became rapid and constant.

VIGOROUS MINING.

In 1855 the shipments of ore began, and the unprofitable mine bloomaries were abandoned. In 1858 the first furnace (the Pioneer) commenced operations. In 1860 the entire ore product of the district exceeded 100,000 tons, and by this time all doubts as to the value and permanence of its mining interest had disappeared. New enterprises followed in quick succession, cities and villages sprang up and thrived, a railroad connecting the mines with lake ports and then with the great northwestern lines was built, and the work of exploration was vigorously pushed in every direction. Even the prostration of the iron industry of the United States by the panic of 1873 only retarded this development. In the calendar year of 1882 the producing iron mines of the upper peninsula were seventy-four in number and their yield was estimated by Commissioner Swineford to be 2,948,307 tons of ore. The same authority placed the value of this product when marketed (including rail and lake freights to Cleveland—9-10 of Lake Superior iron ore is sold at Cleveland—and other distributing points) at $24,263,742. The value, when placed in market, of the aggregate product of the Lake Superior iron districts between the date of the Jackson discovery and the close of 1882, the commissioner estimates at $164,862,180.

THE CHIEF IRON STATES.

Bulletin 270 issued by the United States Census Bureau gives the statistics of the production of iron ore in the United States during the census year ending June 1, 1880. These are the figures of the six States which yielded over 200,000 tons each of iron ore during that year:

Iron Ore Production in Census Year of 1880.

STATES.	Total Product. Tons.	Value of Product.*	Capital Employed.	Average Wages of Miners per Month.	Per cent of Total Product of U. S.	Per cent of Total Value of U. S. Product.
Pennsylvania.	2,185,675	$5,517,079	$17,621,701	$28.57	27.418	23.8144
Michigan.....	1,834,712	6,034,648	17,496,775	43.11	23.015	26.0485
New York....	1,262,127	3,654,422	8,263,139	30.64	15.833	15.7743
New Jersey ..	757,372	2,910,442	6,201,761	39.84	9.501	12.5629
Ohio	547,303	1,269,530	1,248,725	25.98	6.866	5.4789
Missouri	386,197	1,674,875	5,598,556	25.03	4.845	7.2296

* These figures are given as the value of the ore at the mine and not when marketed; well-informed authorities regard those for Michigan as too low.

These figures show that not only was Michigan in 1880 the second iron-ore producing State in the Union, but that it led all others in the quality of its ore and in the value of its product. It is also believed that in 1882 it exceeded Pennsylvania in the quantity of ore raised from its mines and became in that respect also the first iron-ore producing State of this continent. The table further shows that iron miners receive much better wages in Michigan than in any other of the important iron States.

THE IRON DISTRICTS OF MICHIGAN.

The upper peninsula contains three iron districts, viz.:

1. That of Marquette which includes the most thoroughly developed mines, and substantially embraces the counties of Marquette and Baraga. Its chief mines are located in the hills west of Marquette and between or about Negaunee and Lake Michigamme, and are reached by the Marquette, Houghton and Ontonagon railroad and its branches. There is also a detached group of openings south of Marquette, on the headwaters of the Escanaba river, and near the line of the Chicago and Northwestern railway. This region contains the flourishing cities of Marquette, Negaunee, and Ishpeming, the centers of much business activity and communities of enterprising and intelligent people, well provided with hotels, schools, and churches. Near the principal mines there are also thriving villages. The district has been connected by rail for some time past with the ports of Marquette and L'Anse on Lake Superior and Escanaba on Lake Michigan, the harbors of which contain huge ore docks where vessels of the largest class sailing on the lakes can be loaded in a few hours. The completion of the Detroit, Mackinac and Marquette railroad added St. Ignace, on the Straits of Mackinac, to the important shipping points of the upper peninsula.

2. The Menominee district, located in the northern and western towns of the county of that name, and near the Menominee river. The presence of ore in that region has been known since 1867, but active mining operations have been prosecuted there on any considerable scale for only six years. It contained in 1882 fifteen producing mines, which yielded in that year over 1,038,458 tons of ore, and had reached a development greater than that attained by the Marquette mines in the sixteen years following their first shipments. This district is reached by the Menominee River railroad, connecting with the Chicago and Northwestern line, and delivering its ore at Escanaba. Explorations are being constantly pushed in the Menominee district with promising results.

3. The Agogebic district is located between the lake of that name in the centre of Ontonagon county and the Montreal river, which forms the extreme western boundary of the State. It is undeveloped as yet, but is being carefully explored under the supervision of the State Geological Board. There are satisfactory indications of the existence of rich stores of mineral wealth, and large quantities of land in that region were sold during 1881 and 1882 by the United States land office at Marquettee with a view to future explorations.

MANAGEMENT OF THE MINES.

For many years the Lake Superior ores were quarried from the rich deposits just beneath the surface, and the openings were, in fact, huge pits. Since 1870 underground working has been resorted to by the larger mines, and their mineral is now reached by subterranean shafts and levels, and is broken up and handled by the usual methods and machinery. The corporations which have developed and manage this industry represent capital invested with legitimate business aims, and their affairs are, as a rule, guided with signal skill and enterprise.

MINING ON A LARGE SCALE.

Of all American mines of their class, the Republic, Chapin, Lake Superior, Jackson,

and Champion have been the most prosperous. The yield of the Lake Superior mine in 1881 was the largest ever produced in a single year by any iron mine on this continent. No port in America equals Escanaba in the amount of its annual shipments of iron ore. The Menominee Mining Company, owning six developed mines and much undeveloped territory, is pronounced by Mr. A. P. Swineford, who has given more intelligent attention to this subject than most men, to be the largest ore producer in the world. The Republic is unquestionably the greatest iron mine in existence. It contains the largest single iron ore pit of which there is any record; its openings are numerous and skillfully planned, and it has elaborate machinery. It gives employment to more than 500 men, affords support to a village of 2,000 inhabitants, and loads over 300 cars with ore daily during the season. There are other mines not much behind the Republic in magnitude, and fully equal to it in the practical completeness of their appointments.

QUALITIES OF MICHIGAN IRON.

The Michigan ores are of extraordinary richness; sixty-two and nine-tenths per cent of metal is given by the State Geologist as the average percentage of first-class ores, while the furnace books very often show a higher yield. In Pennsylvania fortunes have been made in mining forty per cent ores. The Lake Superior iron ranks as a standard metal in the markets, and its tenacity is very marked.

REDUCTION OF THE ORE.

The greater part of the ore mined in the upper peninsula is shipped in its natural condition and reduced into iron by the coke and anthracite furnaces of other States. The furnaces of Michigan use Charcoal and produce a superior quality of pig metal. They are located near large tracts of hard wood, and depend for their prosperity upon the abundance of that supply of fuel. The building of new railways in the upper peninsula has opened immense tracts of charcoal timber which have been hitherto inaccessible, and an extensive revival in the manufacture of charcoal pig iron in that region is confidently expected. The production of charcoal gives employment to a large amount of labor, and it can be pursued at a season when other labor is suspended.

THE BLAST FURNACES AND THEIR PRODUCT

The Marquette Mining Journal reports seven furnaces as in blast in the upper peninsula in 1882, and gives their product as 72,962 tons of pig metal, representing a value when placed in market of $2,006,455. There are blast furnaces also in other parts of that peninsula which were not in operation during that year, and still others situated in the lower peninsula, at Elk Rapids, Leland, Frankfort, Gilmore, Mancelona, Ironton, Bangor, Caseville, Detroit, and Wyandotte. The publications of the U. S. Census Bureau show that in 1880 Michigan was the first State in the manufacture of charcoal pig iron.

OTHER MINERAL RESOURCES.

PLASTER.

Deposits of a superior quality of gypsum, practically inexhaustible in extent and so exposed in the formation as to be easily accessible, have been found at two points in Michigan, viz.: In the bluffs on the shores of Lake Huron, near Alabaster, in Iosco county, and at the outskirts of the city of Grand Rapids where there is a vast bed of this limestone spreading at a depth of from 40 to 70 feet below the surface over an

area of ten or twelve square miles. This rock is easily quarried or mined (two or three of the Grand Rapids companies have subterranean openings, taking the mineral from cavern-like excavations), and is either ground for use as a fertilizer, or ground and calcined into plaster-of-paris. Some of the finer grained masses are occasionally carved and polished into ornaments. The business is already a prosperous one, and can be developed in the future to meet any probable demand. Its statistics have never been systematically compiled and cannot be accurately given. In 1878 the Commissioner of Mineral Statistics estimated the total product of the State up to that time at 500,000 tons of land plaster and 700,000 barrels of calcined plaster. His report showed that at that date there were seven companies engaged in this business, and that the total product of the two preceding years was 95,000 tons of land plaster and 100,000 barrels of calcined plaster.

Ground plaster for use as a fertilizer, sells in the State generally, near railroad points, at about $4 per ton.

COAL.

It is estimated by the geologists that one-fifth of the lower peninsula of Michigan is underlaid by coal-bearing deposits. These "coal measures," as they are termed, are supposed to cover an area of 8,000 square miles, and their limits, as far as ascertained, would be roughly defined by a line drawn from Sebewaing, on Saginaw bay successively through Holly, Jackson, Albion, Hastings, and Big Rapids, and thence through Osceola, Clare, and Gladwin counties to the mouth of the Rifle river in Bay county. The coal is bituminous and easily broken, possesses excellent heat-producing qualities, and burns with a bright flame, leaving but a small residuum of ashes. It has not been found as yet in large quantities at any one point, and is not sufficiently exposed in the formation to make exploring easy or cheap, while it is, in its natural state, too highly bituminous or not pure enough to make its use possible for smelting, blacksmithing, or the manufacture of gas. The result is that it has been mined, thus far, to a limited extent only. Still, profitably workable beds of coal have been opened at Jackson and Corunna, and their yield has proved equal to any imported coal for the purposes of steam production. Bulletin 273 of the United States Census Bureau gave these statistics of coal production in Michigan: Number of mines, 6; tons mined in year ending June 1, 1880, 100,800; value at mines, $224,500; employés, 412. The total product of the State up to the close of 1881 may be estimated at over 700,000 tons. It is claimed by experts who have investigated the subject that the Michigan coal can be cheaply manufactured into a pure coke. If, after thorough experimenting, this should prove to be the fact, a new era in the manufacture of iron in this State will be at hand. Furnaces will then spring up which will smelt the Lake Superior ores with the lower peninsula coal, and Michigan will rival Ohio and Pennsylvania in this great industry. As yet the stock of coal in this State is practically untouched, and only awaits the discovery of some method of making it more useful to become an important source of wealth.

STONE, SLATE, AND EARTHS.

Michigan is rich in sandstones and limestones of commercial importance. Building stone of excellent quality has been found at many points in the State, and quarries have been opened in the counties of Calhoun, Eaton, Ingham, Ionia, Jackson, Marquette and Monroe. The Marquette brown stone is of particularly fine texture and capable of receiving a high finish; it does not suffer by comparison with any of the free stones known to American builders. Its supply is practically inexhaustible, and its quarrying is an infant industry which must inevitably develop into great importance. The grindstones of the Huron county quarries have no superior in the northwest, and gritstones of good quality are found elsewhere in the State. The slates

of the Huron Bay district in Baraga county, in the upper peninsula, are of excellent quality and cannot be surpassed in the American market in durability and color; these quarries can be developed to a practically unlimited extent and must certainly become the center of a large and thriving industry. The iron district produces a quartz rock which is supplanting the foreign quartz long imported for the lining of Bessemer steel converters, and similar purposes. Clays and sands of commercial value are found everywhere in abundance. Brick and tile yards are numerous and successful potteries are in operation at different points. At Raisinville, Monroe county, is found a superior quality of glass sand, suitable for use in the manufacture of the finer grades of cylinder and plate glass. This has been shipped in large quantities to Pittsburg and Ontario, and is also used in the manufactory of window glass located at Delray, below the city of Detroit. This establishment is, as yet, the only one of its kind in Michigan; in 1880 it employed 54 workmen, paying them $30,000 in wages, and its product amounted to 30,000 boxes of glass of the value of $90,000; its works, which were destroyed by fire in the fall of 1881, are being rebuilt with improved facilities. Lime kilns are common throughout the State. Valuable marbles are among its rocks, and vast quantities of peat exist and must ultimately become valuable for fuel.

GOLD AND SILVER.

Gold bearing quartz has been found near Ishpeming at what is known as the Ropes gold mine. Developments have been made with very encouraging results, and arrangements are being completed for the continuation of the work. Native silver has been found in small quantities in the upper peninsula. It was taken from time to time from the openings of the Minnesota and the Cliff, and in the stamp mills of some of the mines upon the Pewabic lode the washed mineral is looked over for this metal. Seams of rock carrying granular silver have also been found in the Iron river district of Ontonagon county and occasioned some excitement at the time of their original discovery. The systematic mining of this metal has never been attempted in this State with profitable results.

FISHERIES.

That Michigan has the most productive fresh water fisheries in the United States is easily explained by its geographical position. All the important towns on the shores of the great lakes and their connecting straits are the centers of a fishing interest which employs annually several thousand men, uses many steam and sail vessels of small tonnage, and has a large amount of capital invested in nets, shanties, ice-houses, boats, and their outfit. The catch is principally confined to whitefish, lake trout, sturgeon, bass, pickerel, and herring, and is marketed fresh, salted, or frozen. Oil is also obtained in considerable quantities from the offal and unmarketable fish.

GAME AND FOOD FISH OF THE INLAND LAKES.

The inland lakes of which there are more than 5,000 in this State, and the numerous streams also abound in the smaller varieties. Brook trout and grayling are plenty in some of the small rivers of the northern counties, and black bass are caught in many of the lakes. Sportsmen in great numbers flock annually into the thinly settled regions toward the straits of Mackinac in quest of game fish. Perch, eels, pike, and other common varieties contribute to the food supply of the State.

ARTIFICIAL PROPAGATION.

The State has shown its appreciation of this interest by the passage of general laws for the protection and preservation of the best varieties of food fishes, and by the creation and maintenance of a Fish Commission. This board is charged with the artificial propagation of fish, which are planted in what are believed to be suitable waters for their

natural development. It has hatcheries at Detroit, and at Paris in Mecosta county, and Boyne Falls in Charlevoix county, and up to the close of 1881 had planted in lakes and rivers 67,702,761 young fish, including 48,100,000 whitefish in the Great Lakes and Detroit river; 15,118,709 whitefish in inland lakes, 2,107,352 salmon, 1,472,000 eels, 427,400 brook trout, and smaller numbers of California trout, grayling and bass. Excellent results have thus far followed this work in the cases of whitefish, eels, and brook trout.

FISHING AS AN INDUSTRY—MICHIGAN EMPLOYS ONE-THIRD OF THE AMERICAN LAKE FISHERMEN.

At the federal census of 1880, a large amount of information was obtained concerning the fisheries of the great lakes, which has been compiled and tabulated, and given to the public in Census Bulletin 261, under date of September 1, 1881. This information covers the statistics of the fishing industry, as connected with the great lakes, of eight States, viz.: Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, and New York, and the general summary of the number of men and vessels engaged and the amount of capital employed is given in the table which follows:

Number of Men and Vessels engaged in Lake Fishing, and Capital employed in 1880.

STATES.	FISHERMEN.	APPARATUS AND ACCESSORIES.	STEAM TUGS.		VESSELS AND BOATS.		TOTAL VESSELS, BOATS AND STEAM TUGS.		FISH, POUNDS.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Total	5,050	$1,345,975	49	$124,800	1,607	$141,800	1,656	$266,600	1,500	$497,400
Minnesota	35	$10,160	1	$5,000	10	$900	11	$5,900	2	$700
Wisconsin	800	222,840	12	26,900	318	24,775	330	51,675	290	89,675
Michigan	1,781	442,665	24	45,400	466	63,445	490	108,845	375	134,775
Illinois	300	83,400	1	3,000	103	7,500	104	10,500	14	9,800
Indiana	52	29,360	1	2,500	15	1,650	16	4,150	27	14,850
Ohio	1,046	473,800	9	38,400	487	29,830	496	68,230	758	233,600
Pennsylvania	114	24,700	-----	-----	37	3,700	37	3,700	-----	-----
New York	922	59,050	1	3,600	171	10,000	172	13,600	34	14,000

It will be seen by this statement that the number of fishermen employed in the Michigan fisheries is more than 70 per cent greater than that of any other lake State. If the number incidentally connected with the trade should be added, the aggregate would be largely increased. The number of gill-nets used here is stated to be 20,330, with a value of $113,900. Wisconsin, which stands second in this item, has 10,959 gill-nets, valued at $49,920.

FISHING FOR FOOD AND COMMERCE—NEARLY ONE-HALF THE PRODUCT OF AMERICAN LAKE FISHING TAKEN IN THIS STATE.

Another table compiled by the same authority gives the

Quantities and Values of Fish taken in the Great Lakes in 1879.

STATES.	TOTAL.		WHITEFISH.		TROUT.		HERRING.		STURGEON.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds	Value.
Total	68,742,000	$1,652,900	21,463,900	$778,100	6,804,600	$221,700	15,356,300	$117,100	7,012,100	$116,300
Minnesota	176,000	$5,200	150,000	$4,500	-----	-----	-----	-----	-----	-----
Wisconsin	10,194,600	276,605	4,265,850	145,400	2,053,200	$60,550	2,426,900	$33,100	598,100	$16,600
Michigan	24,013,100	711,695	12,902,250	461,800	4,148,000	137,300	1,505,000	20,100	1,949,000	29,575
Illinois	2,937,500	53,000	500,000	17,500	-----	-----	50,000	750	2,275,000	32,500
Indiana	1,173,500	33,820	386,000	17,770	7,500	250	-----	-----	600,000	9,000
Ohio	24,924,300	355,000	1,100,800	39,500	26,200	800	11,374,400	63,150	1,590,000	28,625
Pennsylvania	1,253,000	42,480	975,000	34,130	-----	-----	-----	-----	-----	-----
New York	4,070,000	175,100	1,174,000	57,500	569,700	22,800	-----	-----	-----	-----

Notes attached to this table state that the values are estimated on the basis of the prices of fresh fish, and that of the sturgeon credited to Illinois probably 750,000 pounds came from Wisconsin and a similar amount from Michigan and Indiana, reducing by those figures the general total of Illinois. It will not escape notice that the value of the fish taken by the fishermen of this State in 1879 was more than double that of any other States on the lakes. The reason for this difference, in face of the fact that the total weight caught by Ohio fishermen exceeds that taken here, will be readily comprehended by those who know the difference between whitefish and herring. Of the former variety there were caught in Michigan nearly 13,000,000 pounds, and in Ohio a little over 1,000,000. Of herring Michigan took about 1,500,000 pounds, and Ohio more than 11,000,000.

Other figures given in the census table are valuable and instructive in their relation to the food supplies of the State, as well as for their commercial character. It appears that of the twenty-four millions of pounds and upwards which formed the total catch of 1879 in this State, nearly sixteen millions of pounds, having a value of more than $466,000, were sold while fresh, most of it, presumably, for home consumption, and nearly one-half of this large supply was composed of whitefish, the finest lake fish known to epicures or in commerce. The salted fish of that year put up in Michigan amounted to 5,349,400 pounds, and were valued at $173,725. Something more than a million and a quarter of pounds of fish were frozen for preservation and sought a market in that condition, its value being $69,360.

THE FISHING SEASON, PRICES, ETC.

The fishing season on the lakes covers the season of navigation. Whitefish are most abundant in the spring and fall months, but are taken in the upper lakes, where the water is always cool, whenever the ice is out. They are never caught with a hook, but in gill-nets and seines. Large pounds are kept for their security, and a considerable trade is maintained through the winter by taking them from holes made in the ice for that purpose. Improved processes of freezing are growing in use, and fish are regularly supplied to eastern markets which have been preserved in this manner with their best qualities unimpaired.

The ordinary retail price of fresh fish sold near the fishing stations during the season is about five cents per pound, and this includes whitefish, lake trout, bass, and pickerel. Whitefish taken through the ice out of season, or preserved by freezing, will bring 10 to 12 cents per pound in the Detroit market, and 15 to 16 cents in New York. The quotations of salted fish per 100 lbs. at Detroit early in October, 1881, were for whitefish $5.50, trout $4.50 to $4.75, and herring $3.00.

THE VESSEL INTEREST.

According to the tonnage statistics of the United States for the date of June 30, 1882 (as given in the American Almanac for 1883), not one of the States located away from the ocean coast equals Michigan in the number of vessels owned by its citizens or in their aggregate tonnage; the exact figures are given in this table:

STATE.	No. of Vessels.	Total Tonnage.
Michigan	1,089	202,458
Illinois	427	81,442
Wisconsin	408	91,883
Ohio	439	150,463
Missouri	308	178,598

[The figures of other inland States are small.]

Michigan also surpasses, in this respect, the seaboard States of Connecticut, New Hampshire, Rhode Island, and Oregon, and all the cotton and Gulf States, while it far outstrips in tonnage both Virginia and Maryland, although surpassed by them in the number of vessels. It exceeds California in the number of its vessels, but not in the tonnage total. The coast line of Michigan is only surpassed by that of Florida, and it has ports upon four of the great lakes. Its coasting trade is exceedingly valuable, and its vessel interest represents much capital and enterprise, and deserves an important place in a catalogue of its sources of employment for labor. In this connection the fact should be mentioned that ship-yards are located at Detroit, Wyandotte, Port Huron, Bay City, Marine City, St. Clair, Grand Haven, and other towns and ports.

GENERAL MANUFACTURING.

The miscellaneous manufacturing interests of the State are numerous, extensive, and in thriving condition, but until the figures gathered at the census of 1880 shall be made public it is not possible to give their statistics. The great industrial development of Michigan since 1874 would make any present use of conclusions drawn from the State census of that year utterly misleading, and all that can be done now is to deal with the subject generally and not in details. Treating it in that way it can be said that the State especially excels in its manufactures of railroad cars of all grades; of agricultural implements, from the cheapest hoe to the most costly threshing machine; of furniture, both in soft and hard woods; of stoves, wooden-ware, paper and paper pulp, wagons and carriages, matches and cut tobacco. The annual product of its flouring-mills, planing-mills, sash and door factories, foundries, machine-shops, cigar factories, tanneries, breweries, bakeries, boot and shoe factories, and clothing establishments, must in each case be estimated by millions. Other important items in its list of manufactures are confectionery, saddlery and harness, safes, woolen goods, dried fruits, cider and vinegar, butter and cheese, chemicals, picture frames, and essential oils. The leading towns of Michigan are with few exceptions, important manufacturing centers. This is especially true of Detroit, Grand Rapids, Jackson, Bay City and West Bay City, East Saginaw and Saginaw, Battle Creek, Niles, Flint, Kalamazoo, Adrian, Allegan, Big Rapids, Buchanan, Holland, Jonesville, Lansing, Manistee, Muskegon, Grand Haven, Monroe, Owosso, Three Rivers, Lapeer, Ludington, Charlotte, Alpena, Cadillac, Cheboygan, Greenville, Hastings, Ionia, Marquette, Ishpeming, Negaunee, Hancock, Houghton, and Wyandotte.

The growth of the manufacturing interest in Michigan has been healthy and rapid. The State is rich in natural resources, and by reason of its situation commands, through the impulse of active competition, the advantages of cheap transportation. Its industries are unusually diversified in their character, and skilled labor will never be at a loss, under the ordinary conditions of business, to find ready employment and good wages. It adds to the openings of a steadily advancing material civilization the attractions of a settled society and the security of wholesome laws. Its active and governing citizens are working men; its climate is favorable to labor; and that thrift will follow well-directed industry is proved by the experience of its people.

MICHIGAN AS A FARMING STATE.

Notwithstanding the enormous wealth of Michigan in other resources, it is in agriculture, in which at least half of its active population are employed, that it develops its greatest eminence. This eminence, of which ample proof will be given, has for its foundations natural advantages of which the State cannot be divested, and which ensure to its prosperity a permanent and enduring character.

I. The fertility and diversity of the soil. A separate chapter on this subject, prepared by an authority which is recognized in this State and elsewhere as entitled to the highest consideration, both for scientific and practical knowledge, is printed on subsequent pages.

II. The geographical position of Michigan, altogether unique in its character, affecting both its climate and its markets. Lake Superior, more than 400 miles long and the largest fresh water sea in the world, washes its northern shores; Lake Michigan, 345 miles in length, second in size, and the largest lying wholly within the United States, forms the greater portion of its western boundary; and Lakes Huron, St. Clair and Erie, with their connecting rivers, mark its limits on the east. Excepting about 170 miles of its southern extremity the entire lower peninsula is surrounded by water; and excepting a similar distance on its southern and southwestern boundary the same is true of its upper peninsula. With this enormous expanse, varying in depth from a hundred to a thousand feet, and defining a coast line of more than 1,600 miles—half the breadth of the Atlantic—eternally operating upon the soil and atmosphere of a territory, every farm on which lies less than a hundred miles from its touch, and affording during a large part of every year the cheapest transportation known to commerce, the simplest imagination must realize the existence of peculiar geographical conditions unknown elsewhere in the agricultural States. The effect of these conditions on the climate of the State is treated more at large in future pages.

III. The accessibility and nearness to the great markets of the world, taken in connection with the comparatively small capital needed, constitute another and very important reason for the profitableness of farming in Michigan. Every hundred miles saved in transportation to the seaboard adds to the value of the staple agricultural productions. No State or territory in the union has so many cheap and fertile lands within so easy reach of the leading markets.

IV. The wonderful diversity of natural resources in Michigan, and the manufacturing interests to which they contribute, create a constant and increasing home market for the products of the soil. Vast quantities of the yield of the farm and garden go to the mills, lumber camps, furnaces and mines, and find ready and profitable sale. There are few neighborhoods where some of these markets are not found, and the wagons of the farmers of the vicinity bringing hay, oats, potatoes, butter, cheese, eggs, poultry, fresh meat, and fruit are always welcomed and rewarded with good prices.

COMPILATION OF AGRICULTURAL STATISTICS.

The United States Department of Agriculture has organized a system of information which is of great value both to the people of this country and to those who may contemplate settling here. It is based upon the reports of special correspondents, consisting, as the Department explains, of four in each settled county, and numbering

several thousand in the aggregate, who are selected for their familiarity with the local agricultural interests of their respective counties. These men become trained observers of the sections they are appointed to inspect, and make periodical reports which are compiled at Washington, the results, arranged and classified, being then made public. The comparative statistics thus collected and handled are not exposed to the suspicion of prejudice or partiality, and conclusions drawn from them must command respect.

COMPARATIVE RESULTS IN TEN WESTERN FARMING STATES FOR SIX YEARS.

The reports of the Department of Agriculture for the years 1875, 1876, 1877, 1878, 1879, and 1880 present a series of figures which when placed in juxtaposition form this table, showing the average cash value per acre of eight leading productions of the farm, taken together, in ten farming States of the West, during a term of six years. These crops are wheat, corn, rye, oats, barley, buckwheat, potatoes, and hay. The States are arranged in the order of precedence.

Average Cash Value Per Acre of Eight Principal Crops of Ten Western Farming States During Six Years.

STATES.	1875.	1876.	1877.	1878.	1879.	1880.	Total for Six Years.
Michigan	$17 53	$14 46	$15 63	$13 88	$18 96	$16 96	$97 42
Ohio	13 55	12 96	13 34	12 08	15 58	16 60	84 11
Indiana	12 00	10 63	11 42	9 85	14 66	13 82	72 38
Wisconsin	13 08	10 93	11 10	9 77	13 80	12 46	71 14
Minnesota	12 70	8 30	12 79	7 76	10 29	11 54	63 38
Illinois	11 46	8 10	10 04	7 68	12 47	11 64	61 39
Missouri	10 59	9 18	9 68	7 69	10 78	10 85	58 77
Kansas	9 51	10 37	8 39	7 58	9 11	7 98	52 94
Iowa	8 60	7 30	9 09	5 80	8 88	9 34	49 01
Nebraska	7 28	6 40	7 89	6 55	8 60	6 88	43 60
Average of nine States excluding Michigan	$12 19	$10 47	$11 17	$9 22	$12 36	$11 23	$61 87

The average cash value per acre of these eight crops for the year 1881, in Michigan was $19.48.

Without the combination of a fertile soil and convenient markets the precedence which the foregoing table awards to Michigan could not have been obtained. That general farming was more profitable here than in the other great States included in the comparison during the six years covered by it was due to nature and not to art.

PROFITS OF GRAIN GROWING IN THE WEST AND NORTHWEST IN 1879.

The principal cereals which seek markets out of the State are wheat, corn, oats, and barley. The same grains are raised also in the other western and northwestern States and territories in which cheap farming lands are to be had, and those who carefully examine the comparative yield per acre and value per bushel of these products in the States and territory named for 1879 will the more readily comprehend the results exhibited above, and cannot fail to be impressed, not only with the bounty of its soil, but with the advantages which nearness to the great markets of the continent affords to the farmers of Michigan.

*Average Yield per Acre, Price per Bushel, and Value per Acre, of the four Principal Cereals of the Western and Northwestern States holding Cheap Lands, and of Dakota Territory, for the Year 1879.**

STATE, ETC.	WHEAT.			CORN.			OATS.			BARLEY.		
	Bushels per acre.	Price per bushel.	Value of crop per acre.	Bushels per acre.	Price per bushel.	Value of crop per acre.	Bushels per acre.	Price per bushel.	Value of crop per acre.	Bushels per acre.	Price per bushel.	Value of crop per acre.
Michigan	19.5	$1 17	$22 81	40	$0 45	$18 00	34	$0 35	$11 90	22	$071	$15 62
Indiana	18.1	1 17	21 18	32	34	10 88	25	28	7 00	23	78	17 94
Illinois	15.9	1 07	17 01	36	31	11 16	32	27	8 64	22	59	12 98
Wisconsin	12.8	1 04	13 31	35	39	13 65	34	30	10 20	24	61	14 64
Minnesota	11.4	94	10 72	34	27	9 18	38	23	8 74	26	43	11 18
Iowa	10.2	92	9 38	42	24	10 08	34	23	7 82	20	45	9 00
Missouri	12.	1 01	12 12	36	25	9 00	21	26	5 46	19	....	.....
Kansas	9.3	89	8 27	31	27	11 37	19	26	4 94	13	43	4 59
Nebraska	9.5	84	7 98	40	21	8 40	26	23	5 98	15	37	5 55
Dakota Ter.	9.4	94	8 84	22	35	7 70	26	28	7 28	14	....	.....

*The yield of bushels per acre as given in this table is taken from U. S. Census Bulletin 175, of May 30, 1881. The average prices per bushel are taken from the Report of the Agricultural Department for 1879, except those for the Territory of Dakota, which were furnished by the Statistician of that Department, at the request of the compiler of this pamphlet, in a letter dated August 8, 1881. The third column under each head, giving the value of each crop per acre, is the product of the other two.

It is not necessary to speculate upon the conclusions to be drawn from these figures. They speak for themselves. In the average productiveness of its soil, the average cash values of its crops, and the extent and cheapness of the new farming lands it offers for agricultural purposes,—taking all these considerations together—Michigan is unequaled among either the States or the territories in the advantages it offers to farmers of small means.

MICHIGAN WHEAT.

The great crop of Michigan is wheat. Its exports bring more money into the State than all its other surplus crops. The census figures show that its aggregate production has about doubled in every ten years since 1840, and that the average yield per acre has increased from 10 bushels in 1849 to 19.49 bushels in 1879, and, according to the "Farm Statistics," compiled at Lansing, to 17.30 bushels in 1880.

FOURTH IN VOLUME AND FIRST IN CAPACITY OF PRODUCTION.

The total area devoted to wheat culture in the United States in 1879, as shown in the census of the following year, was 35,430,052 acres, and the yield in bushels was 459,479,505. The acreage of Michigan was 1,822,749, and the product 35,532,543 bushels, about one-thirteenth of the whole crop. Illinois, with a yield of fifty-one millions, Indiana, with a yield of forty-seven millions, and Ohio, with a yield of forty-six millions of bushels, were the only States that produced as much wheat as Michigan. The product of this State was nearly four and a half millions of bushels greater than that of New York and Pennsylvania combined.

The wheat crop of the State in 1879, according to the same authority, exhibited *the largest average yield per acre of any distinctively wheat-producing State or territory.* Out of a national product, as stated above, of about 460,000,000 of bushels, nearly 400,000,000 were grown in fourteen States, and their acreage and total and average yield are shown in these figures:

Comparative Productiveness of the Principal Wheat-Growing States.

STATES.	Acres.	Product.	Bushels per Acre.
Michigan	1,822,749	35,532,543	19.5
Indiana	2,619,695	47,284,853	18.1
Ohio	2,556,134	46,014,869	18.
Illinois	3,218,542	51,110,502	15.9
California	1,832,429	29,017,707	15.8
New York	736,611	11,587,766	15.8
Pennsylvania	1,445,384	19,462,405	13.5
Wisconsin	1,948,160	24,884,689	12.8
Missouri	2,074,394	24,966,627	12.
Minnesota	3,044,670	34,601,030	11.4
Iowa	3,049,288	31,154,205	10.2
Kentucky	1,160,108	11,356,113	9.8
Nebraska	1,469,865	13,847,007	9.5
Kansas	1,861,402	17,324,141	9.3

Every State whose product reached ten millions of bushels is included in this table. The acreage of Dakota territory was 265,298, and its crop was 2,830,289 bushels, an average of nine bushels and four-tenths to the acre. The average yield of the States which surpassed Michigan in extent of production, Illinois, Indiana, and Ohio, was seventeen bushels and one-fifth, that of this State being nineteen bushels and a half.

SPRING AND WINTER WHEAT.

The States of Wisconsin, Minnesota, Iowa, and Nebraska, and the territory of Dakota constitute a section of country known as the spring wheat belt, and the number of acres of wheat sown therein in 1879 was not quite 10,000,000, and the product a little over 107,000,000 of bushels, or an average of less than 11 bushels to the acre.

During the ten years preceding the census the yield in the leading States of Illinois, Indiana, Ohio, and Michigan, was increased about 78,000,000 of bushels. The increase in the spring wheat belt during the same period, which included the development of the large fields of Dakota, was about 34,000,000 of bushels.

WHITE WINTER THE PRINCIPAL MICHIGAN CROP.

The wheat raised in this State is almost exclusively that which is known as white winter. There is some spring wheat sown, producing excellent crops, but the practice is not common, and Michigan spring wheat is almost unknown in the market. It is the influence of the surrounding water upon the climate that makes this general culture possible in these latitudes. The growth of winter wheat in the other northwestern States and in the territories lying east of the Rocky Mountains is almost as rare as that of spring wheat in Michigan. Nearly all that reaches the market from those sections is of spring sowing. The wheat of this State holds a very high rank in the market, and has a standard of its own. Michigan white winter flour is known in nearly every European grain exchange.

SEED TIME AND HARVEST.

Wheat in Michigan is put into the ground between the 10th of September and the 5th of October, according to the forwardness of the season and the condition of the weather. Ordinarily the 10th to the 20th of September is the seeding time. The wheat usually gets a growth of three to four inches before the snows of winter come [redacted]. In the average Michigan winter the wheat is protected throughout by the [redacted]comes out in the spring looking fresh and green. Especially is this the

case in the northern portion of the State. There is very little heaving of the soil by frost in winter, even where it is unprotected by snow, so that open winters are usually not injurious to the crop if the spring weather be favorable.

The harvest generally begins in the southern portion of the State in the first week of July, and that month sees the crop garnered throughout most of the State. Labor-saving machinery is so generally in use that harvesting is quickly and easily managed. On the whole, taking one year with another, there is no crop in Michigan more sure and reliable than the wheat crop, and the past experience of the farmers of the State has been that there is none more profitable.

PROCESS OF CULTIVATION.

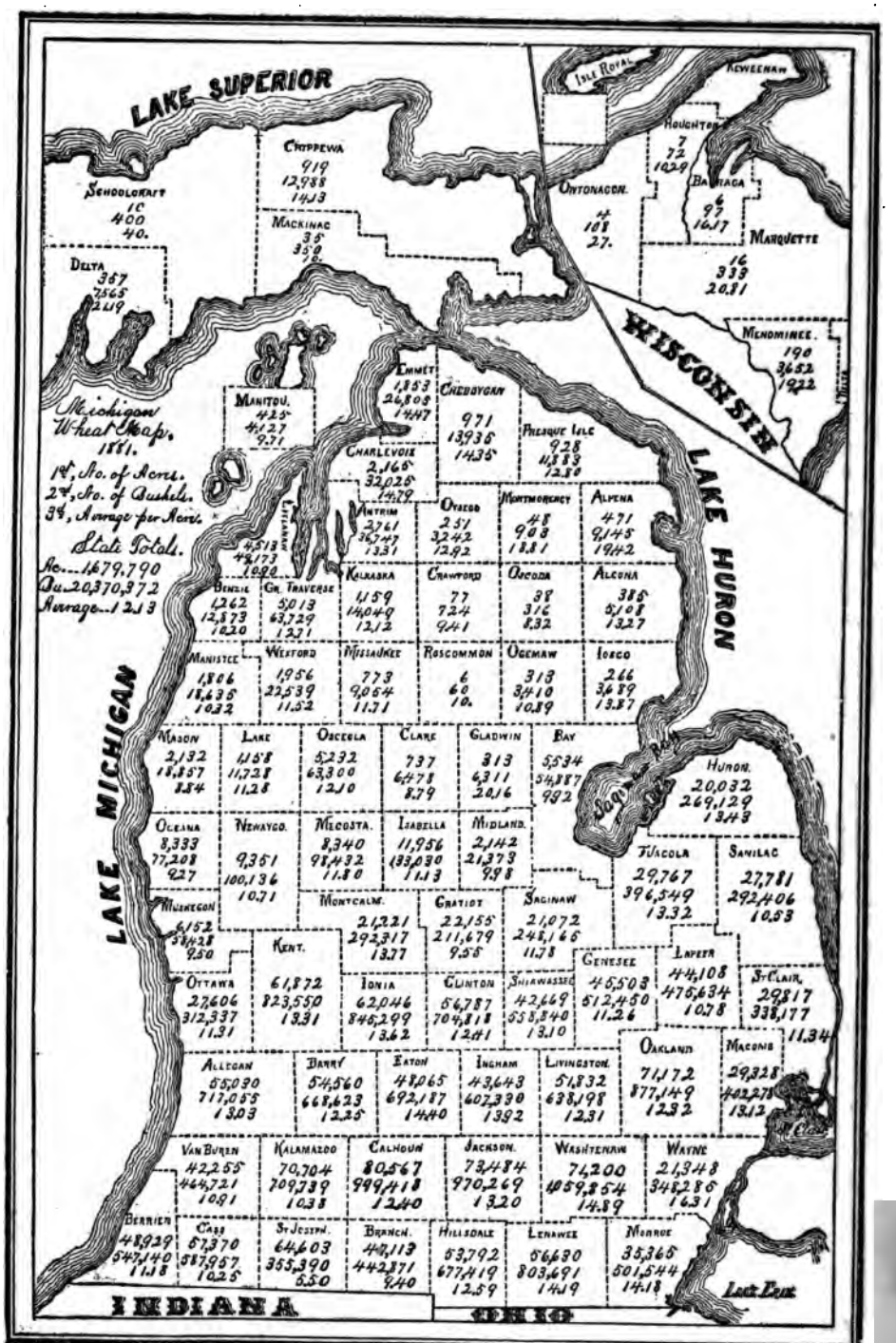
Wheat does not rapidly exhaust the soil. Upon the newest lands a crop may be raised every year. There are localities in which the soil is too strong for profitably raising wheat until it is reduced by repeated cropping. The ordinary practice in the newer portions of the State, however, is to alternate wheat with corn, oats, and other spring crops, taking a crop of wheat every second year. In those parts of the State longest under cultivation the practice known as "seeding down" is followed. Clover is sown broadcast upon the field in March or April, before the wheat is harvested. This takes root and yields pasturage the same autumn. The next season the farmer takes from the field a crop of hay. The second season he may plow his clover sod under and plant corn, putting in wheat the following September, after the corn has ripened; or, what is the better practice with careful farmers he may turn under his heavy growth of clover in June and let the field lie fallow until the time for sowing wheat. The clover thus turned under, supplemented sometimes by rotted wheat-straw and barn-yard manure, proves a rich fertilizer. By this treatment a crop of wheat is produced each third year, and the yield per acre of the fields under cultivation for fifty years is kept very nearly up to those but freshly reclaimed from nature.

OTHER CHEAP FERTILIZERS.

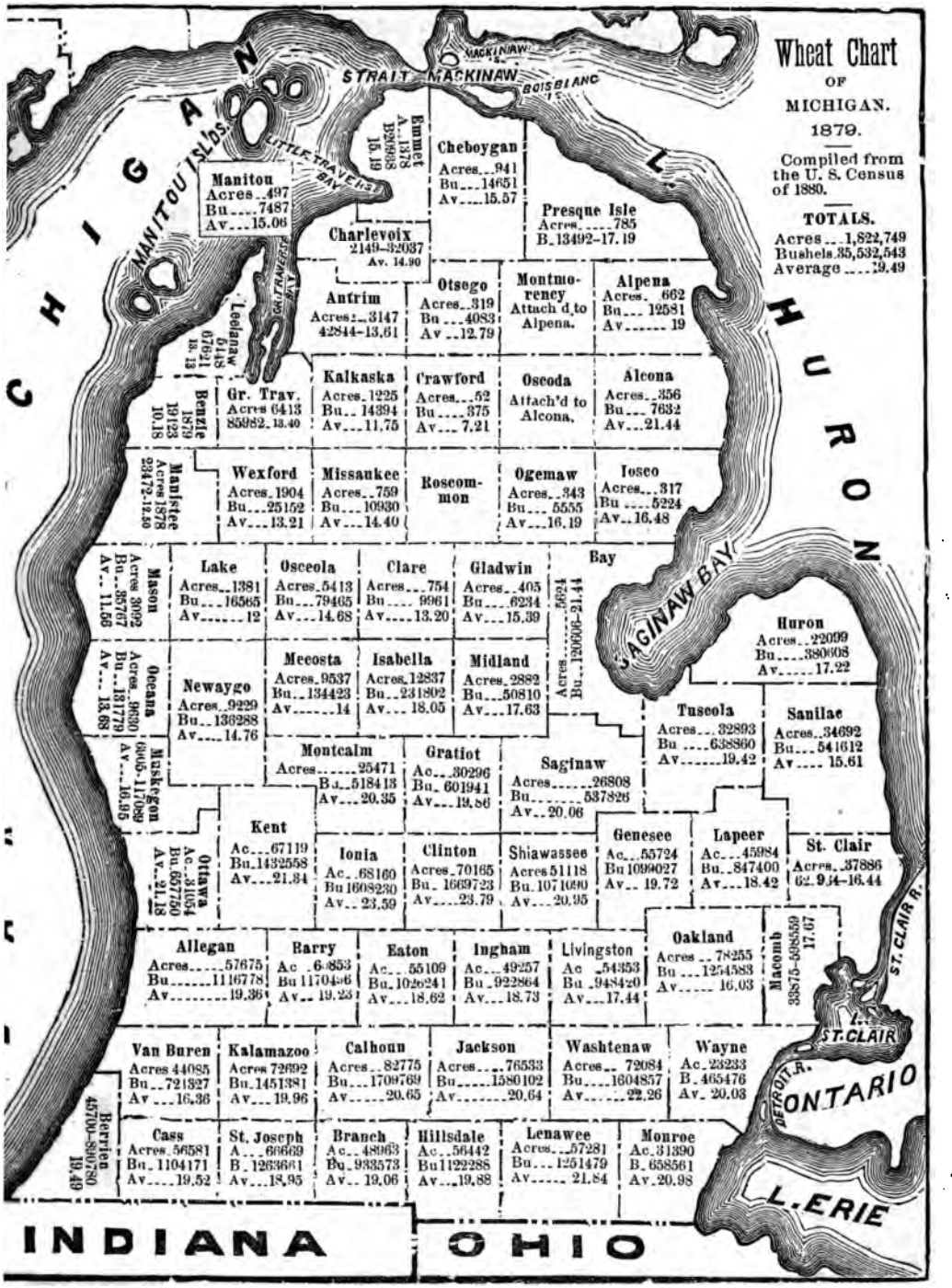
Gypsum has long been extensively used in the State. It abounds in the vicinity of Grand Rapids and in Iosco county. It is easily mined and is furnished to farmers at very low prices. The refuse of the salt manufactories, which are numerous in Michigan, has been proven to be a very valuable fertilizer. It is delivered to the farmer at almost any railroad station in the State at $4 per ton. A ton is sufficient for ten acres, and the effect of one application is felt through two or three seasons. The cost of gypsum is about the same, but of this latter a fresh application is required every year. In some localities muck is used in making a compost with barn-yard manure. The only cost is for handling. Within the last few years farmers have been experimenting with super-phosphate, an article made by treating bone dust with sulphuric acid. The experiments are reported to have been successful, and the sales of the article are extending and its manufacture becoming an important industry. There are numerous beds of marl scattered about the State, and this material is easily converted into quick lime, which is used to some extent as a fertilizer, and is found to be very valuable on some soils.

A WHEAT CHART OF THE STATE.

The diagrams which are used in connection with the publication of wheat statistics by the State Department illustrate with great clearness the general productive capacity of Michigan in this important cereal. They are given here for the sake of convenience, and show the acreage, crop, and average yield per acre of each county, in the year 1881, as returned to the Secretary of State. Persons not familiar with the State should be advised that the southern counties, where the heaviest proportion of the crop is produced, are composed of the old settlements. The more northern



Designed by Robert L. Hewitt.


Wheat Chart
OF
MICHIGAN.
1879.
Compiled from the U. S. Census of 1880.
TOTALS.
Acres ... 1,822,749
Bushels 35,532,543
Average ... 19.49
MACKINAW
STRAIT MACKINAW
BOIS BLANC
MICHIGAN
LAKE HURON
MANITOU ISLDS.
LITTLE TRAVERSE BAY
GR. TRAVERSE BAY
SAGINAW BAY
ST. CLAIR R.
ST. CLAIR
DETROIT R.
ONTARIO
L. ERIE
INDIANA
OHIO
Manitou
Acres ..497
Bu 7487
Av 15.06
Emmet
A..1378
B20908
15.19
Cheboygan
Acres...941
Bu...14651
Av....15.57
Presque Isle
Acres.....785
B.13492-17.19
Charlevoix
2149-32037
Av. 14.90
Antrim
Acres...3147
42844-13.61
Otsego
Acres..319
Bu ...4083
Av ..12.79
Montmorency
Attach'd to Alpena.
Alpena
Acres. 662
Bu... 12581
Av..... 19
Leelanaw
5148
67621
18.13
Benzie
1879
19123
10.18
Gr. Trav.
Acres 6413
85982-13.40
Kalkaska
Acres..1225
Bu...14394
Av....11.75
Crawford
Acres...52
Bu.....375
Av... 7.21
Oscoda
Attach'd to Alcona.
Alcona
Acres...356
Bu... 7632
Av...21.44
Manistee
Acres 1878
23472-12.50
Wexford
Acres..1904
Bu...25152
Av...13.21
Missaukee
Acres...759
Bu...10930
Av....14.40
Roscommon
Ogemaw
Acres...343
Bu.... 5555
Av....16.19
Iosco
Acres...317
Bu 5224
Av...16.48
Mason
Acres 3092
Bu...85767
Av... 11.53
Lake
Acres..1381
Bu...16565
Av.....12
Osceola
Acres..5413
Bu...79465
Av....14.68
Clare
Acres...754
Bu.... 9961
Av....13.20
Gladwin
Acres...405
Bu....6234
Av....15.39
Bay
Acres.....5624
Bu..120606-21.44
Huron
Acres..22099
Bu....380608
Av.....17.22
Oceana
Acres..9630
Bu...181779
Av....18.68
Newaygo
Acres..9229
Bu...136288
Av....14.76
Mecosta
Acres..9537
Bu...134423
Av.....14
Isabella
Acres.12837
Bu...231802
Av....18.05
Midland
Acres..2882
Bu...50810
Av....17.63
Tuscola
Acres...32893
Bu 638860
Av.....19.42
Sanilac
Acres..34692
Bu....541612
Av.... 15.61
Muskegon
6045-117089
Av....16.95
Montcalm
Acres.....25471
Bu...518413
Av....20.35
Gratiot
Ac...30296
Bu. 601941
Av....19.86
Saginaw
Acres.....26808
Bu.....537826
Av..20.06
Ottawa
Ac...31054
Bu.657750
Av...21.18
Kent
Ac...67119
Bu.1432558
Av....21.34
Ionia
Ac..68160
Bu 1608230
Av... 23.59
Clinton
Acres..70165
Bu. 1669723
Av.....23.79
Shiawassee
Acres 51118
Bu.1071080
Av....20.95
Genesee
Ac...55724
Bu 1099027
Av... 19.72
Lapeer
Ac...45984
Bu..847400
Av....18.42
St. Clair
Acres..37886
62.94-16.44
Allegan
Acres.....57675
Bu.....1116778
Av.....19.36
Barry
Ac ..6 853
Bu 1170456
Av... 19.25
Eaton
Ac... 55109
Bu.1026241
Av....18.62
Ingham
Ac...49257
Bu..922864
Av....18.73
Livingston
Ac ..54353
Bu ..948420
Av....17.44
Oakland
Acres ..78255
Bu ...1254583
Av..... 16.03
Macomb
33875-698559
17.67
Van Buren
Acres 44085
Bu..721327
Av ...16.36
Kalamazoo
Acres 72692
Bu.1451381
Av....19.96
Calhoun
Acres..82775
Bu....1709769
Av.....20.65
Jackson
Acres....76533
Bu.....1580102
Av.....20.64
Washtenaw
Acres.. 72084
Bu....1604857
Av.....22.26
Wayne
Ac..23233
B..465476
Av. 20.03
Berrien
45700-880780
19.49
Cass
Acres..56581
Bu..1104171
Av.....19.52
St. Joseph
A...66669
B..1263661
Av...18.95
Branch
Ac...48963
Bu..933573
Av... 19.06
Hillsdale
Ac..56442
Bu1122288
Av...19.88
Lenawee
Acres...57281
Bu....1251479
Av..... 21.84
Monroe
Ac.31390
B. 658561
Av.20.98

CEREALS AND OTHER PRODUCTS.

Table showing the Products of each County in the State for the Year 1881, in Six of the Principal Farming Crops, as shown by the Returns to the Secretary of State, together with the Number of Acres devoted to each crop.

COUNTIES.	CORN.		OATS.		BARLEY.		PEAS.		POTATOES.		HAY.	
	Acres.	Bush. Ears.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Tons.
STATE.....	773,594	40,989,137	465,363	15,352,444	26,544.66	611,580	22,549.81	381,892	93,237.52	7,342,926	1,163,580	1,331,615
Alcona	27	1,511	229	9,540	13.	348	135.75	3,582	130.25	24,472	954	1,761
Allegan	28,067	1,400,999	7,935	244 130	492.30	11,810	13 25	202	2,159.81	165,535	34,217	41,134
Alpena	24	1,385	1,038	28,108	22.	443	348.75	7,340	423.50	41,975	2,782	2,885
Antrim	1,028	54,502	939	25,704	27.37	609	187.12	3,600	511.63	59,269	3,501	3,944
Baraga	.....	.....	20	405	.....	.....	.....	70	88.	8,065	415	640
Barry	22,192	1,192,308	7,151	219,414	23.20	691	1.	10	1,449.24	103,333	27,728	32,679
Bay	3,095	202,530	3,700	139,407	158.	5,813	169.50	3,004	1,776.87	150,828	10,519	11,487
Benzie	1,137	52,524	661	16,969	28.	633	74.87	1,504	360.97	35,436	2,569	2,671
Berrien.....	26,752	1,047,810	9,975	261,718	20.	493	23.37	607	1,883.04	93,846	21,967	25,229
Branch.....	20,884	1,723,881	9,913	312,419	11.50	409	58.75	1,128	1,346.62	94,972	27,028	28,928
Calhoun.....	30,758	1,891,109	12,016	441,709	434.50	11,421	3.	120	1,600.41	111,568	34,074	41,692
Cass	29,700	1,273,657	10,172	262,302	8.	96	3.	87	1,499.22	72,941	23,160	25,787
Charlevoix	600	35,369	1,238	35,771	54.75	1,428	265.08	5,624	552.12	65,359	3,512	4,034
Cheboygan....	104	6,383	885	26,027	6.25	115	307,50	5,590	481.41	57,204	2,426	2,906
Chippewa	.....	.....	821	17,202	80.50	1,182	503.25	10,139	140.25	14,181	983	944
Clare.....	273	9,780	296	6,183	6.	10	37.50	591	245.25	20,766	1,650	1,549
Clinton.....	19,160	966,725	14,415	517,897	82.75	2,326	32.50	433	1,780.49	131,754	29,197	34,713
Crawford.....	201	7,250	135	2,935	.....	.....	1.37	69	249.	17,493	107	130
Delta	29	1,027	942	26,893	7.50	389	50.	874	328.25	47,356	2,465	2,439
Eaton	23,293	1,356,957	10,182	366,319	156.75	3,967	70.	1,228	1,493.36	131,796	29,266	36,294
Emmet	712	39,135	1,094	32,020	38.25	676	52.66	928	473.03	68,050	1,504	1,842
Genesee	19,951	928,994	20,478	753,596	619.37	15,481	160.	2,618	2,730.35	185,919	40,733	43,996
Gladwin.....	124	11,670	150	11,878	.....	.....	11.	417	94.	13,948	684	1,323
Gr'nd Traverse	1,976	108,203	1,918	56,107	61.	1,375	218.75	3,803	652.45	67,843	5,981	7,395
Gratiot	14,368	862,937	8,665	332,156	71.25	1,214	64.25	835	1,273.27	113,233	15,310	17,670
Hillsdale.....	30,920	2,024,584	12,341	423,413	53.25	1,207	1,756.50	28,351	1,294.86	98,634	33,952	38,790
Houghton	2	78	365	8,319	.....	.....	10.	146	395.50	18.271	3,660	1,568
Huron.....	1,762	79,619	6,099	170,720	167.44	6,531	4,560.58	80,666	1,382.07	108,296	17,350	18,846
Ingham.....	20,473	1,249,694	9,598	346,816	211.	4,900	74.62	1,196	1,654.96	137,804	28,549	35,046
Ionia	21,871	1,130,877	10,819	342,784	590.50	12,642	7.	124	2,168.35	155,080	30,657	38,079
Iosco	75	4,595	417	11,090	1.	25	162.50	3,156	303.08	29,037	1,731	2,134
Isabella	4,384	238,116	3.496	104,118	33.75	590	94.61	1,634	1,116.46	92,283	9,275	9,778
Jackson	27,673	1,794,394	10,040	377,379	132.25	3,132	44.12	521	2,008.12	168,608	36,998	44,397
Kalamazoo	29,768	1,846,241	9,313	290,213	265.50	5,649	4.50	474	1,330.04	89,733	32,020	35,859

Kalkaska	779	46,315	738	21,061	14.25	333	127.32	2,226	450.95	53,355	1,795	2,003
Kent	23,356	1,172,402	11,329	324,655	337.25	7,679	4.25	50	3,838.09	288,531	40,570	45,811
Keweenaw	------	------	63	1,640	5.	75	4.50	40	98.50	8,120	924	444
Lake	586	24,345	440	10,171	3.62	64	116.70	2,030	293.13	26,993	2,115	2,322
Lapeer	15,160	531,741	14,842	431,486	964.50	20,564	278.25	10,299	2,219.01	107,728	28,425	28,260
Leelanaw	1,626	73,913	2,218	58,090	39.	800	153.50	2,617	746.64	73,708	4,807	5,258
Lenawee	39,409	2,845,177	17,913	704,503	168.75	4,624	588.	10,567	1,938.52	161,347	46,122	57,814
Livingston	20,388	937,125	11,038	382,472	683.	15,312	7.25	173	1,693.41	109,171	33,402	40,140
Mackinac	15	745	101	2,782	------	------	30.58	599	181.	16,564	221	190
Macomb	17,959	746,174	21,301	7 8,515	1,269.25	30,326	359.25	4,978	2,372,32	176,966	31,733	33,039
Manistee	1,053	52,587	1,277	36,535	134.50	2,759	82.38	1,260	622.79	59,027	3,888	4,432
Manitou	15	520	292	3,550	16.50	530	11.	178	157.25	10,489	570	385
Marquette	3	154	613	15 476	24.50	426	12.50	192	270.	32,360	2,170	1,477
Mason	1,240	54.769	918	25,034	93.50	1,469	95.75	1,590	792.99	65,390	3,798	4,821
Mecosta	2,861	129,695	2,384	59 454	83.25	1,489	113.12	1,868	1,193.13	99,239	8,365	9,617
Menominee	22	747	561	15,978	50	11	19.75	739	509.25	45,100	1,636	2,318
Midland	1,235	65,395	1,181	34,483	17.75	419	72.50	1,296	504.46	37,754	4,947	5,400
Missaukee	333	13,920	651	16,379	58.25	1,064	64.87	935	240.25	27,533	1,953	1,586
Monroe	27,448	1,559,649	15,246	494 509	805.25	16,676	117.	1,503	2,371.75	174,133	29,185	35,277
Montcalm	7,013	386,193	4,371	127,614	66.	1,232	93.25	1,475	1,692.37	147,911	14,900	18,129
Montmorency	5	180	142	4,327	------	------	52.	1,290	47.83	6,064	260	270
Muskegon	3,371	161,074	1,541	44,916	50.	1,056	5.75	80	942.92	76,423	6,603	7,227
Newaygo	5,140	245,207	2,405	68,377	101.	2,060	89.30	1,691	1,336.95	107,522	11,219	12,195
Oakland	30,623	1,141,178	23,758	807,347	2,102.50	51,265	232.12	3,585	4,926.19	336,788	51,686	58,370
Oceana	3,611	216,650	1,592	48,736	227.25	4,476	67.88	1,449	1,246.	134,273	8,494	10,482
Ogemaw	88	3,846	315	8,125	------	------	4.25	71	357.35	32,123	1,200	1,319
Ontonagon	4	237	402	12,150	10.	294	70.25	1,615	156.75	19,900	1,230	1,497
Osceola	1,748	81,076	1,858	50,399	115.37	2,317	286.50	5,271	1,218.67	116,658	7,922	8,764
Oscoda	19	1,025	49	1,198	1.	12	------	------	66.	5,716	108	157
Otsego	124	7,303	253	6,567	1.	20	18.66	704	255.13	34,553	466	472
Ottawa	12,527	658,431	5,574	161,759	234.	5,242	9.25	201	1,882.45	165,295	17,429	20,125
Presque Isle	86	3,726	1,206	24,215	163.87	2,356	746.75	13,332	470.	53,073	930	1,123
Roscommon	34	1,100	31	1,060	------	------	------	------	123.	8,079	262	329
Saginaw	13,143	809,108	13,765	565,791	547.50	15,443	107.25	2,263	3,450.90	291,042	24,914	28,501
Sanilac	3,738	145,128	13,029	395,992	4,555.	108,879	5,545.12	94,208	1,580.82	110,808	23,384	24,141
Schoolcraft	1	50	65	2,500	------	------	------	------	36.50	3,845	107	135
Shiawassee	16,805	836,176	12,070	459,325	276.50	7,046	30.	559	1,856.49	136,596	27,715	34,706
St. Clair	10,654	397,444	28,503	887,484	6,048.62	126,721	1,886.	23,298	2,840.12	185,508	37,853	39,303
St. Joseph	31,830	1,584,907	10,889	304,365	238.50	4,716	8.	142	2,481.43	147,875	27,694	27,733
Tuscola	11,887	595,230	9,622	325 594	428.75	12,251	454.12	7,822	2,365.22	164,137	18,829	19,317
Van Buren	26,703	1,351,385	8,639	238,178	65.50	1,447	19.75	397	1,317.71	90,610	14,796	28,032
Washtenaw	28,286	1,683,307	15,938	650,918	1,589.75	40,683	150.50	2,778	1,848.37	140,491	50,545	61,254
Wayne	21,477	1,139,177	17,687	615,396	917.	21,449	242.12	5,733	4,237.83	386,611	37,696	44,883
Wexford	806	39,782	1,189	30,677	110.	2,027	64.87	1,117	631.04	67,629	3,788	3,988

sections, where the population is yet comparatively sparse, exhibit a relatively small acreage. The average yield, however, is a good one, even with a less careful cultivation than prevails in the older counties, and shows conclusively the general adaptation of the State to the production of wheat. It is a higher average than that of Iowa, Kansas, Nebraska, or Dakota in the bountiful harvest of 1879, as may be seen by comparison with the table heretofore presented in these pages. It is not, however, as favorable a showing as that of 1879 that being an unusually productive year. A wheat chart of the lower peninsula for the year 1879 is inserted, for the purpose of showing the remarkable yield of that year.

The United States census of 1880 ascertained the actual yield of the State in the principal cereals for the year 1879 to be as follows:

Wheat, 35,532,543 bushels, Michigan ranking fourth among the States in the amount produced, Illinois, Indiana, and Ohio each leading.

Indian Corn, 32,461,452 bushels.

Oats, 18,190,793 bushels.

Barley, 1,204,316 bushels.

Rye, 294,918 bushels.

Buckwheat, 413,062 bushels.

The "Farm Statistics of Michigan, 1879–80," based upon returns from the various counties and compiled in the office of the Secretary of State, show that in the same year of 1879 the State produced of

Clover Seed, 313,063 bushels.

Peas, 538,232 bushels.

Potatoes, 10,897,600 bushels.

Hay, 1,051,115 tons.

Other staples are produced in Michigan of which there are no late returns. The census of 1880, when fully compiled, will supply this deficiency. The preceding census taken by the general government showed an annual product in the State of 828,269 pounds of *Hops*, and 280,325 pounds of *Honey*. The last State census taken showed among the productions of the preceding year 4,101,912 pounds of *Butter*, and 4,319,793 pounds of *Maple Sugar*.

Field Peas produce good crops in nearly all parts of the State, and show remarkable thrift in the northern counties, particularly in the upper peninsula. Many farmers, notably those who come here from Canada, consider them as valuable as corn for feeding stock.

The United States Department of Agriculture, after a critical examination into the feasibility of raising *Beet* root for the manufacture of sugar, reports favorable conditions for its profitable cultivation in the most parts of the State. The Legislature, at the session of 1881, passed an act to encourage the culture of sugar cane and the sugar beet, and the manufacture of sugar therefrom, by exempting buildings and machinery employed therein from taxation for five years, and authorizing a bounty on the product.

Tobacco, which figures so largely among the products of many of the States, and contributes so much to the manufacturing statistics of Michigan, must also be included among its agricultural productions. The census of 1880 shows that 173 acres were planted in 1879, and yielded 84,333 pounds. The total yield in 1869 was 5,385 pounds.

The Statistics of 1881, collected and compiled by the Secretary of State, furnish information concerning other results of agricultural labor. The table printed on pages 40 and 41, collected from these sources, shows the production of the State for that year, by counties, in the important articles of corn, oats, barley, peas, potatoes, and hay, together with the acreage devoted to each crop. The wheat returns are contained in the preceding charts.

The number of acres of "improved land" in each county is shown in the table accompanying the map which prefaces this pamphlet.

CURRENT PRICES IN DETROIT, JUNE 1, 1883.

Flour, white wheat, per bbl., $6.50@6.75; Wheat, No. 1 white, per bushel, $1.10½ @$1.11; Corn, 59c.; Oats, No. 1 mixed, 47c.; Barley, per cwt., $1.25@1.80; Rye, 60c.; Potatoes, 55@60c.; Hay, per ton, $12@$13; Peas, per bushel, $1.05@$1.20; Beans, $1.25@$1.60; Clover seed, $6,50@$7.00; Timothy, $1.90@2.00.

SHEEP AND WOOL.

In the census of 1870, Michigan ranked fourth among the States in the production of wool—Ohio, California, and New York, each leading. The census of 1880 showed that the State with 2,189,389 sheep held the same relative rank ten years later, Texas being substituted for New York as one of the three States surpassing it.

At the centennial exhibition of 1876, at Philadelphia, an award was made "to the State of Michigan" for its "collective exhibit of samples of wool produced in the State." These samples were contributed by 116 persons in ten counties, and included "461 of Merino and 196 of long combing wools of English blood." The subjoined diagram, however, giving the product of the year 1881 shows that sheep-raising is a common industry all over the State.

The prices paid by dealers for Michigan wool of all grades on the 1st of October, 1882, ranged from 35 to 40 cents per pound.

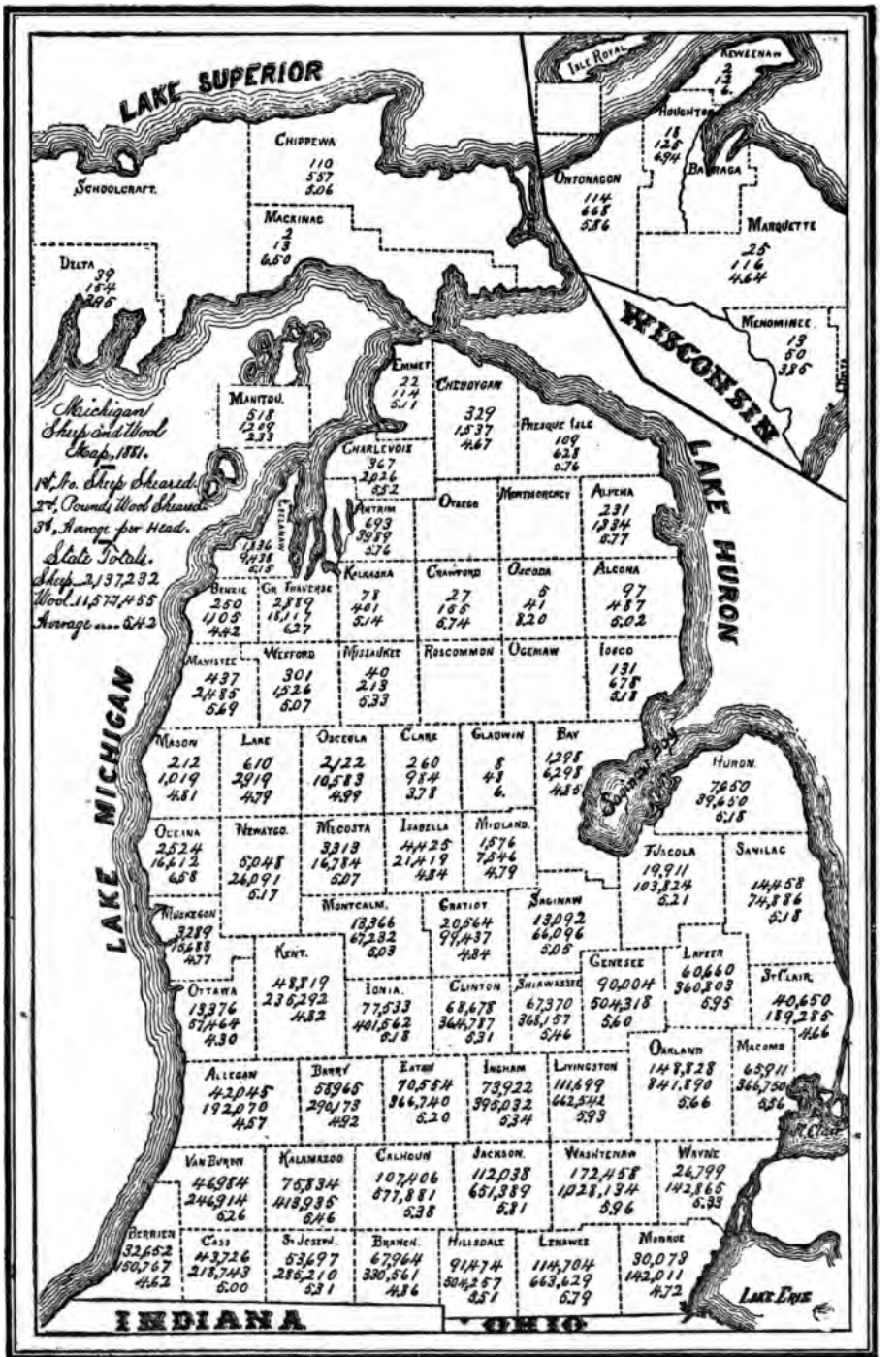
QUALITY OF THE WOOL.

Experienced dealers state that about three-quarters of the wool produced here rates as fine Spanish, and the remainder is of mixed grades. Sheep-raising is a profitable pursuit in any part of the State. Increased attention is being given to the growth of cross-breeds which may be used both for wool and mutton, and with much success.

OTHER LIVE STOCK.

The compilations from supervisors' returns in the office of the Secretary of State show that in May, 1883, Michigan contained this live stock of the age of six months and upward:

Horses	318,731
Milch cows	310,337
Cattle other than milch cows	317,784
Hogs	458,101
Sheep	2,216,300



Designed by Robert L. Hewitt.

THE GREAT FRUIT STATE OF THE NORTHWEST.

[Republished from a paper prepared by Charles W. Garfield, Secretary of the State Horticultural Society.]

When Father Marquette and his Jesuit brothers paddled around our beautiful peninsula over two hundred years ago, dropping here and there a few apple and pear trees along with the "seed of the word," they little dreamed of the great future that was indicated for Michigan in the thrifty growth of seedling fruit trees that were to spring up along their pathway. A few of these old trees, and some that were planted a few years later, are still found in various places on the shores of Erie, Detroit river, Huron, and Lake Michigan; they are healthy and strong, bearing regular crops of fruit, monuments of the adaptability of our State to the cultivation of the apple and pear.

It was not until the discovery that peaches could be grown successfully, of the best quality, upon our western Michigan shore, that fruit-growing for market was given an impetus in the State. This was about 1840, and from that date until 1881 the development of fruit culture in our State is without a parallel. Facts have gradually been brought to light in the experience of orchardists that prove Michigan to be peculiarly adapted, on account of her climatic conditions, to a wide range of fruits, from the semi-tropical fig to the iron-clad Siberian crab.

This rapid development has been due to two causes: First, the influence of the great lakes curves the isothermal lines well to the northward, so that a large area is rendered serviceable in the growth of the less hardy fruits; and second, in the rapid development of the Great West to which we are readily accessible, and in which these fruits can not be grown, we have a never failing market for all the surplus.

Lake Michigan is truly a "cherishing mother" to the orchardist. A body of water 345 miles in length and nearly 100 miles in breadth, it would float the three States of New Jersey, Delaware, and Maryland; and it is deep enough almost anywhere to bury Mount Holyoke beneath its surface. With its 3,400 cubic miles of water in one basin, it maintains a very even temperature throughout the year; and this, with the fact that about sixty-five per cent of our winter winds are westerly, gives the key to our peculiar success in horticulture. We grow peaches successfully along the 45th parallel which bounds Vermont on the north, and raise figs in the open air in latitude 42½°, about on a line with Boston, Massachusetts. It is true that this lake influence is not felt so largely in the interior as along the shore; still, in a large measure, the whole southern peninsula is modified in extremes of weather by this great equalizer. The fact that the western shore from St. Joseph northward to Grand Traverse is especially favored with immunity from frost has given rise to the term

MICHIGAN FRUIT BELT.

This is a strip of territory with a shadowy interior boundary in which peaches are grown with a smaller percentage of failures than elsewhere in the State. Within this belt there is great choice of location for purposes of peach culture; still the purchaser is not compelled to give the same relative importance to altitude that he would farther in the interior.

A very large percentage of the peaches grown in Michigan for shipment abroad has been, until very recently, raised within the fruit belt; but from the high grounds in Kent, Kalamazoo, Hillsdale, Washtenaw, Lenawee, and other interior counties, large quantities have been shipped in late years.

RAILROADS, WATER LINES, MARKETS.

Michigan is now threaded with lines of railroads; several trunk lines extend across the State from east to west, while others reach into the undeveloped but rapidly growing regions of the north. Thus the fruit-grower who wishes to reach the great markets can readily do so; or if he desires to supply the pioneers and the lumbermen who are, as yet, without the luxury of good fruit, ample facilities are at hand. Not only this, but a great lake on either side gives abundant means with easy carriage,

of reaching great markets independent of the railroad systems. Immense quantities of fruit are shipped daily from the ports along Lake Michigan from St. Joseph to Traverse City, furnishing the great distributing market of Chicago with fresh fruit, only twelve hours picked, each morning during the entire fruit season. It must be remembered also that as one traverses this shore for the 200 miles of the belt, he will find in all the perishable fruits there is no danger of disastrous competition in the markets, because of the variation in date of ripening; while the purchaser of these fruits in the markets reaps the benefit of an extended season for each variety.

SOILS.

In the whole of Michigan one can certainly find the exact character of soil he seeks, for every shade of variation seems to be represented. Mistaken notions have obtained, at different times, concerning the soil upon which Michigan peaches are grown; in truth the remark has often been made that "up in Michigan you grow peaches on your sandy land that will grow nothing else." We can assure people at the outset that good peaches are only grown upon good land. The fruit belt is not uniformly sandy, and is by no means poor land. Upon the blowing sands where dunes are formed, it is common to find the most thrifty trees bearing luscious fruit in large quantity. Such land cannot be poor. It is also true that in many localities heavy soil can be found immediately upon the shore. In the interior the best fruit lands are clay and sandy loams, and, if the location pleases the purchaser, there is little doubt but he can obtain the quality of soil that will satisfy his taste.

The low lands, in many places in which vegetable matter predominates, are being utilized by the horticulturist, and often are very valuable when fitted for market gardening or cranberry culture.

CHEAP LANDS.

The almost fabulous prices at which well developed fruit farms have exchanged hands in western Michigan have led many to believe that it requires a large investment to enter the realm of successful fruit culture. It is only in cases where orchards have come into successful bearing and are returning a large income that the lands command extravagant prices. The fruit region of Michigan is extensive, and only a small part of the land available for the production of even the more tender fruits has been improved. As good locations can be secured to-day at rates varying from ten to twenty-five dollars per acre, as those which have exchanged hands at from $200 to $1,000 dollars per acre after the plantations were in full bearing.

Those who contemplate building homes in our State should give time to their selection. A few weeks spent in examination of locations and prices will, in the end, be money in the pocket.

It is impossible, in a short paper, to give much light concerning special localities, but by means of recent correspondence we have gathered some locality statements which will answer the questions that are most commonly asked.

MONROE COUNTY.

Monroe county is at the head of Lake Erie, and along its shores are the most extensive and successful vineyards in the State. In this county more grape wine is produced than in all the rest of the State. A large nursery interest centers at Monroe city, and excellent pears are grown which find a ready market, at high prices, in the large markets of Detroit and Toledo. Railroad and water communication makes this an exceptionally good point for the market horticulturist. The calcareous soil gives a higher quality to the grape than in most other places in the State. Wine makers give two or three cents more per pound for grapes grown on this lime soil than for the average grapes in the market.

BRANCH, HILLSDALE, AND LENAWEE.

The above named counties raise excellent apples and pears, and upon the high lands peaches are grown nearly every year. These counties are upon a high level, and the streams flow rapidly, giving good land and atmospheric drainage. This section is an old settled farming country in which all ordinary fruits do well. The inhabitants are cultured, and farmers' clubs, horticultural and agricultural societies flourish there; it is a region of pleasant homes.

ST. JOSEPH AND CASS.

This is the region of large farms, and horticulture is only an accompaniment of

farm life, although in Cass county are several extensive orchards which are made very profitable. Notably one farm, that of B. G. Buell, of Little Prairie Ronde, produces the finest Northern Spy and Red Canada apples that go into the Chicago market.

BERRIEN.

A correspondent who is thoroughly acquainted with Berrien county remarks that "Nature evidently intended this region for a great fruit garden to supply the luxuries of the palate to the denizens of the western prairies." In this country dwell the pioneers of our commercial fruit-growing, and here have been grown, within the last quarter century, peaches, pears, and small fruits that would rival any that have been placed in the world's markets. All that is needed is a proper label and the famous fruits of California can be obtained in Berrien county. Apricots, nectarines and figs are grown here, as well as the soft shelled almond. The growing of the tender raspberries and blackberries has long been a specialty here. Three thousand acres of strawberries are now in bearing. Chicago is the great market, but the surplus in times of a flush is readily worked up by canning and drying establishments which are at hand. An extensive cranberry interest is now building up upon the low lands about Stevensville, which promises, on account of the safety from frosts, to rival any plantation in the west.

[In 1878, 1879, and 1880, there were forwarded to Chicago, by rail, on the fruit trains of the Chicago and West Michigan railroad, from 16 stations of Berrien county, 253,662 half bushel packages of berries, 135,687 baskets or boxes of peaches and grapes, and 67,125 barrels of apples. During the same three years the clearances from the port of St. Joseph, in the same county, were 161,912 crates of berries, 168,630 baskets of peaches and grapes, and 38,324 barrels of apples.]

WAYNE AND WASHTENAW.

In Wayne county, about our metropolis, Detroit, the specialties are small fruits and market garden products. The soil is a rich dark loam, admirably suited to this work, and Detroit furnishes a good home market. Washtenaw has a "peach belt" of its own. Upon the high ground in this region peaches are almost as sure a crop as upon the western shore. Fruits of all kinds are grown for market here and at a good profit. The people are foremost in testing new varieties and take a great delight in the pleasures as well as profits of horticulture. There is scarcely anything but rich land in this county, and the situation of our great University and Normal School within its borders makes it an attractive place for people of education and good taste.

JACKSON, CALHOUN, KALAMAZOO.

These three counties in the same tier along the Michigan Central railroad are settled by people who pursue horticulture as an ornamental part of farming. As amateurs, they test new things and desire that their ventures may add to their information while furnishing pleasant surprises for the table. In the towns a good deal of attention is given to ornamental gardening. This is notably true of Kalamazoo, where good taste, added to a delightful location, renders this "largest village in the world" a delightful place in which to live. Kalamazoo is something of a nursery center, and small fruits, including grapes, are specialties with the horticulturists.

VAN BUREN.

This county borders on the lake; South Haven is its port. A large fruit-growing interest centers at South Haven where are located some of the finest commercial growers in the State. At Lawton and Paw Paw, upon high lands, peaches and grapes are grown of especially fine quality. The growers here seek out markets a long way off and frequently ship the tender fruits to points in northern Minnesota and Dakota. The fruit-growers here were among the first in the State to note the special adaptability of elevated lands to fruit culture. They acted upon this knowledge and have reaped a rich reward. Cheap lands in good locations are still attainable at these points, but are being rapidly picked up.

The harbor at South Haven is an excellent one and daily boats run to Chicago during the fruit-shipping season.

ALLEGAN.

Allegan is the western county in the third tier. In the shore townships peaches

are grown extensively, although it is a recent occupation with the inhabitants. They found their location to be a peculiarly good one and have been developing it rapidly. There are above 4,000 acres closely planted to fruit along the shore in this county, and although most of the orchards are young, still last year (1880) 800,000 baskets of peaches were exported and above 13,000 barrels of apples. Ten thousand packages of small fruits were sold the same season. People who have confidence in the locality, and who are thrifty and observing, have settled here and are making this region one vast orchard.

In eastern Allegan two railroads cross from north to south giving excellent shipping facilities. Peaches are grown upon the hights successfully, and at Plainwell is centered a large strawberry interest. From this point immense quantities are shipped to the great markets.

INGHAM.

In this county are situated the State Capitol and the Agricultural College, and around these gather a class of inhabitants that take delight in the pleasures of horticulture. Lansing is destined to be a beautiful city. Tree planting and the embellishment of homes as evidences of the employment of horticultural knowledge interest the dwellers here. At the Agricultural College extensive experiments are performed which are calculated to interest the people of the entire State in a knowledge of methods in horticulture and the scientific information upon which they are based.

OAKLAND AND MACOMB.

In these counties are situated some of the oldest apple orchards in the State. The people of these counties can get up a creditable apple exhibit at almost any season of any year. A large apple orchard is the accompaniment of every farm, and it is usually made a very profitable accessory.

OTTAWA AND MUSKEGON.

These counties border Lake Michigan in its widest part, and each has an excellent port. From Grand Haven, in Ottawa county, there is a daily line of beautiful steamers to both Chicago and Milwaukee, the best fruit markets in the west, and the distributing markets for a vast interior. Opening into Grand River, and forming an admirable harbor, is Spring Lake, a sheet of water of rare beauty, and along the banks of which are located scores of fruit farms, each one having its dock from which the shipments for each day can be picked up. The soil about western Ottawa is sandy, but is not devoid of fertility, and muck and marl beds are common, which are vast savings banks to the fruit-grower upon which he can draw at will. This is certainly one of the most delightful places in the State for people to locate who have an appreciation of natural beauty and desire to combine the "art which mends nature" with nature herself. Peaches and grapes are the specialties on these fruit farms.

Muskegon lies just to the northward and is rapidly developing many large fruit farms. Small fruits are grown with great success, and for a market locality the growers seem to exhibit more than common interest in new sorts. A special inducement to settle about Muskegon is the pure water everywhere near the surface and the available cheap lands that can be secured.

HURON.

The county of Huron is peculiarly situated. A glance at the map will exhibit the fact that it has the longest shore line of any county in the State. Bounded on three sides by deep water, it is admirably situated as far as lake protection is concerned. The average winter temperature is that of Bloomington, Ill. From records furnished by Wm. L. Armstrong of Sand Beach, during the winter of 1880-1, when in southern Michigan we had some exceptionally severe weather, -10° was the lowest point the thermometer indicated in Huron county. Frost is unknown there in autumn until a month after it has visited the interior of southern Michigan.

This is a new county, but is destined to be one of the finest horticultural sections in the State. Its marketing facilities are such as to attract the commercial grower, and the salubrious climate adapted to so wide a range of varieties will soon be found by the amateur growers.

THE SAGINAW VALLEY.

The country tributary to Saginaw and Bay City is not peculiarly adapted to any horticultural specialty, but is an admirable region for mixed husbandry in which the

growth of all the hardy fruits, and all sorts of market garden products, should take a prominent place. With a rich soil, thrifty people, and a grand market which extends to the northern peninsula, there is no doubt but this is destined to be a wonderful country.

KENT.

It has been said by people accustomed to judge of such matters that Grand Rapids, the capital of Kent county, is better supplied with a variety of fresh vegetables and fruits than any city east or west. The display of horticultural products all along through the season is certainly a credit to the skill of the people engaged in horticulture in that region. Large peach orchards within twelve miles of the city are in full bearing this year (1881), even although the entire crop of the country is very meager. The State Horticultural Society had its beginning here, and its successful record is largely due to the people of this locality, who have contributed freely of their time and means to its upbuilding.

IONIA AND MONTCALM.

Lying east of Kent are the counties of Ionia and Montcalm. In the former are scattered some of the most enthusiastic fruit-growers in this State. Situated too far from the lake to be immediately influenced by it, still upon the hights of ground even peach culture is successfully prosecuted. It is true of the latter county that its northern limit is about the boundary of the successful culture of the less hardy varieties in the interior of the State; but a large population settling to the north furnishes an admirable market near at hand for all the surplus fruit of Montcalm.

OCEANA, MASON, MANISTEE, BENZIE.

These four counties lie along the Michigan shore next north of Muskegon. Each has its lake harbor, and, although less developed than any of the counties before named, still the growing of fruit has become a leading industry in many locations. The finest plums in the world are grown here. Intelligent growers are awakening to the possibilities of this region, and great fruit farms are being planted. A glance at the map will suffice to show that portions of Oceana and Mason counties extend well out into the lake, giving a water protection even when the wind is directly north or south.

In Manistee and Benzie the fact is especially to be noted that the soil is calcareous in its nature, and the country abounds in pure springs from which the celebrated grayling are taken in abundance. Pure water, clear air, and rich soil, with a delightful climate, make this a famous region. The Flint & Pere Marquette Railroad taps Lake Michigan at Ludington, in Mason county; the Chicago & West Michigan line reaches to Pentwater, in Oceana, and will soon be extended farther north.

GRAND TRAVERSE.

The "Grand Traverse region" includes more than a county; by the term we mean the country about the large bay of that name. The waters of the great lake, the depth of the bay, and the large area of inland water tributary to the bay, render the climate of this country peculiarly mild. Favorable locations are absolutely protected from extremes of temperature. The bay is from six hundred to one thousand two hundred feet in depth, and acts as an immense refrigerator in spring, keeping back vegetation and fruit buds until all danger of frosts is over; and, after becoming warmed up through the summer, acts as a huge warming-pan in preventing early fall frosts. The surface about northern Lake Michigan, Grand Traverse Bay, and the deep inland lakes, descends rapidly toward the water, affording ready and rapid atmospheric drainage. The soil is composed of glacial drift, abounding in all the elements of plant growth, and has perfect natural underdrainage. A layer of clay is usually within reach of tree roots, giving a good "bottom" for pear culture. By water this country has cheap freights to all lake ports and to Europe.

Apples, pears, plums, and cherries are the fruits for this region. The large fruits are noted for their exceptionally fine flavor and keeping qualities. Grand Traverse pears and cherries are famous in the great markets of the West, and the plums, which are superb, rarely can reach the large markets for they have become so popular on the route.

The climate of this region is very healthful, and malarial diseases are scarcely known except as they are imported. The landscapes are of unsurpassed beauty, and

although now through the direct communication of the Grand Rapids & Indiana Railroad it is a very popular summer resort, it is destined to become much more than this—a region of lovely, permanent homes.

THE EASTERN SHORE.

The eastern shore northward from Bay county to Cheboygan is a country in which all the superior varieties of apples, pears, plums and cherries succeed. The fact that so large a territory toward the interior receives its supplies from these shore counties gives a valuable market near at hand for all the products of the farm, the garden, and the orchard. Thrifty, cultured people are settling in this region, and are developing its natural resources very rapidly.

FRUIT TRAINS.

[The Chicago and West Michigan railroad runs a fruit train between Holland, in Ottawa county, and Chicago, during the season of shipments, affording conveniences for fruit-growers at every point from which consignments are forwarded. Between the 1st of June and the 31st of December, 1880, there were shipped from 25 stations situated in the counties of Ottawa, Allegan, Van Buren, and Berrien, 124,502 half bushel packages of berries, 401,483 half bushel packages of grapes and peaches, and 57,405 barrels of apples.]

HORTICULTURAL ORGANIZATIONS.

The State Horticultural Society was organized in 1870, and is in a flourishing condition. Ten volumes of the transactions of this society have been published by the State, and it is largely due to the work of this society, and the liberality of the State in support of this work, that horticultural pursuits have been given such an impetus in Michigan. The State society is composed largely of auxiliary associations, which have sprung up in various places and do special locality work.

MICHIGAN FOR HOMES.

Any country that is especially adapted to horticultural pursuits is a good region in which to build a home; for the advantages which together render a region fit for successful fruit-growing are those which one asks for when he seeks a place in which to settle for life. The products of horticulture are the most delightful accompaniment of a home, and in the development of some branch of horticulture, no matter what the principal occupation may be, one gets a wholesome satisfaction that softens the years and renders life more enjoyable. Michigan presents to the home-seeker a great many advantages that appeal at once to the practical good sense of those who are seeking a place in which to build up a home. A recapitulation of these advantages may be given very briefly as follows:

Michigan is practically free from debt; her public institutions are her pride, and her educational system is commended by the best educators in the country.

The agricultural advantages for mixed husbandry are of the very best; the climate is not equaled by any northern State; the air is clear, the water pure, and the variations in temperature comparatively slight.

The landscapes are beautiful, and a wide range of fruits, plants, flowers, and trees that form the accompaniments of a well-embellished home, can be grown successfully.

Delightful resorts are near at hand everywhere; and a refined and intelligent people make up her present population.

Michigan has a motto upon her coat of arms—*Si quæris peninsulam amœnam circumspice:* If you wish to see a beautiful peninsula, look about you. That is no flaming advertisement of exaggerated proportions, but is a simple introduction to those who enter our borders, the apparently complimentary language of which is found by every visitor to be a truthful statement.

The old, derisive songs that told of ague, marshes, rattlesnakes, and wolverines as the natural products of Michigan are not sung any more; and none visit the peninsular State who do not go away with pleasant accounts of her climate, soil, productions, and people.

ACREAGE OF ORCHARDS AND SALES OF FRUIT IN 1882.

The following statistics show the acreage of orchards in 1882 and the sales of fruits in 1881. They show that the growers in sixty-two counties had *apples* to sell in addition to those used in home consumption. The entire sales of the State in that year are given as 2,885,976 bushels, and the acreage of the apple orchards as 232,-605.* The apples of this State rank among the best fruit productions of the country for flavor and texture; some of them are unsurpassed in any market in the world.

Peaches were sold in forty-three counties to the extent of 106,850 bushels, leaving large supplies for family use.† The peach orchards of the State were reported as covering 13,679 acres.

Sales of *grapes* for market purposes were returned at 3,043,694 pounds, and the growth of these was distributed through fifty-five counties.

In other fruits, of which the largest consumption is usually in their domestic use, viz.: *cherries, plums, currants,* and *berries,* the sales were reported at 147,853 bushels, the product, but much below the total product, of sixty-seven counties.

The special report (No. 36) of the Department of Agriculture in 1881, which gave the statistics of grape culture and wine production in the United States, showed the Michigan product of 1880 in these figures:

Area of vineyards, acres	2,266
Gallons of wine produced	62,831
Value of product	$75,617

The December meeting of the State Horticultural Society was held in 1882 at Flint, in Genesee county. Papers were read by President Lyon and others, which contained interesting statistics and other information relative to the fruit production of the State, and fully confirmed the opinion, so universally prevalent, that Michigan is the first fruit State in the Union.

At the December meeting of the State Horticultural Society which was held in 1881 at South Haven, in Van Buren county, a paper was read by C. J. Monroe of that town which showed that the fruit shipments from that port during the season of 1881 amounted to over 235,000 packages of peaches, 18,000 barrels of apples, 33,000 baskets of grapes, and 8,000 cases of berries. Taking the fruit checks paid by the bank of which he is cashier as a basis, Mr. Monroe estimated that the amount received for these shipments was not less than $180,000. The acreage devoted to peaches and small fruits in that vicinity is about 1,200, and, as $150,000 was realized from these sources, it appears that the average yield of each acre was in excess of $125 in value.

*The sales for 1880 reached 4,834,936 bushels.
†The sale of peaches for 1880 was 413,418 bushels.

TOPOGRAPHY OF THE STATE.

For purposes of description the Lower Peninsula of Michigan may be divided by east and west parallel lines into three grand divisions, to be known as the Southern, Middle, and Northern. These divisions are purely arbitrary and for convenience, and are not suggested by the conformation of the country or by any natural lines. The Southern division, embracing four tiers of counties, comprises the oldest and most developed section of the State, and its rural portions are devoted entirely to agriculture. The Middle division embraces the next three tiers of counties, and comprises what is generally known as the principal pine lumber region of the State. Where the native forests have been cleared away the country is rapidly developing agricultural resources, while lumbering enterprises are advancing northward. The Northern division is the newest and least settled portion of the peninsula, being, in great part, unimproved.

The Upper Peninsula may, in like manner, be separated into three divisions by a line drawn due southward from Marquette bay to Green bay, and by a line drawn from the head of L'Anse bay to the head of Montreal river where it becomes the western boundary of the State. The Eastern division is principally agricultural and is mostly in a state of nature. The Middle division is conspicuous for its resources of iron which yield already enormous products. The western division includes what is known as the Mineral Range, and is famous for its copper mines, besides possessing valuable agricultural lands.

SOUTHERN DIVISION OF THE LOWER PENINSULA.

Entering upon a more detailed description it may be said that the Southern division embraces the counties of Monroe, Lenawee, Hillsdale, Branch, St. Joseph, Cass, Berrien, Van Buren, Kalamazoo, Calhoun, Jackson, Washtenaw, Wayne, Macomb, Oakland, Livingston, Ingham, Eaton, Barry, Allegan, Ottawa, Kent, Ionia, Clinton, Shiawassee, Genesee, Lapeer, and St. Clair. There are no mountains or considerable elevations in this region. The face of the country is nevertheless broken and gracefully undulating. It will be observed by consulting a map that this division is mainly drained into Lake Michigan. The watershed is considerably to the eastward of a line equally dividing this region. The Grand, the Kalamazoo, and the St. Joseph, which are among the largest rivers in the State, all have their sources eastward of a central dividing line and all flow westward into Lake Michigan. The streams which flow eastward are the Raisin, Huron, Rouge, Clinton, and Black. These are small rivers and drain a comparatively limited extent of country.

The divide is a tolerably well-defined line extending almost parallel with the easterly line of this section of the State and embracing the county of Hillsdale, western Lenawee, eastern Jackson and Livingston, western Oakland and eastern Genesee. Its elevation above Lake Michigan is 400 to 600 feet. There are hills in western Lenawee and eastern Hillsdale 550 to 600 feet above Lake Michigan. The summit of the divide is somewhat irregular in its course and is a broad, rolling plateau, originally oak openings. Eastward the land falls rapidly away to the flat, level country which borders on the lakes and their connecting straits. This embraces the counties of Monroe, Wayne, Macomb, and St. Clair. There are indications that the shore of the waters was at one period some 20 miles inland from its present location, and that the

counties named were the bed of the lake when the remaining portion of this region was dry land. The soil is rich alluvium and the original timber was very heavy oak, elm, beech, etc.

Westward of the divide the land falls away more gradually to within 20 or 30 miles of the lake. The elevation of all this central region is 200 to 400 feet above Lake Michigan. The country is diversified with hill and dale, with rich grass valleys along the streams and, for the most part, was densely covered with hard-wood forests. The Saginaw Valley touches the northeastern portion of this division. The Shiawassee river, which is a tributary of the Saginaw, traverses Shiawassee county, and the Flint in like manner crosses Genesee. In these regions there is a perceptible falling away from the altitude of the divide to the much lower level which characterizes the whole Saginaw Valley. On these streams and in north Lapeer and St. Clair pine makes its appearance.

MIDDLE DIVISION OF THE LOWER PENINSULA.

The Middle division is composed of the counties of Sanilac, Huron, Tuscola, Saginaw, Gratiot, Montcalm, Muskegon, Oceana, Newaygo, Mecosta, Isabella, Midland, Bay, Gladwin, Clare, Osceola, Lake, and Mason. This comprises the great valleys of the Saginaw and the Muskegon. The Saginaw, with its large tributaries, the Tittabawassee, Cass, Shiawassee, and their branches, drains the counties of Tuscola, Saginaw, Bay, Midland, Gladwin, and a large part of Gratiot, Isabella, and Clare. In this division the watershed is very much nearer to Lake Michigan than it is in the Southern division. It traverses in a northerly direction the counties of Montcalm, Isabella, and Clare. Its altitude is about 300 feet above Lake Michigan. The valley of the Saginaw, which includes its tributaries, is the lowest portion of the State. East Saginaw is but 8 feet above Lake Michigan; Midland, on the Tittabawassee, but 20 feet, and Vassar, on the Cass, but 45 feet. These streams are, therefore, somewhat sluggish and afford no water power. They are mainly used for logging purposes and have floated immense numbers of pine logs to the mills situated thereon.

The valley of the Muskegon is somewhat more elevated than the region east of the watershed; the streams are more rapid and, in some localities, furnish excellent water power.

The Huron Peninsula has a watershed of its own, eastward, however, of a central dividing line. Several small streams flow into Lake Huron, and Black river, a considerable stream heretofore mentioned in connection with the Southern division, traverses a large part of Sanilac county before it enters St. Clair. Cass river has its sources on the divide and there are a goodly number of small streams which flow directly into Saginaw bay. The central portion of this peninsula is an elevated plateau, rising some 400 feet in Sanilac and Tuscola counties and extending into a range of hills in the southern part of Huron. This region was at one time heavily timbered, but is now given up mostly to agriculture.

The characteristic timber of all the Saginaw and Muskegon regions was pine, though this was mixed with hardwood in many localities, while in others there were extensive tracts of oak, sugar maple, beech, hickory, etc. The soil is very fertile and is adapted to grazing and to all the cereals which are grown so successfully in the southern parts of the State. The vicinity of Saginaw bay is the great salt manufacturing region of the State.

NORTHERN DIVISION OF THE LOWER PENINSULA.

The Northern division comprises the counties of Iosco, Ogemaw, Roscommon, Missaukee, Wexford, Manistee, Benzie, Leelanaw, Grand Traverse, Kalkaska, Crawford, Oscoda, Alcona, Alpena, Montmorency, Otsego, Antrim, Charlevoix, Presque Isle, Cheboygan and Emmet. In this section is found the highest land in the Lower

Peninsula. The whole central portion rises to an elevation of 600 to 800 feet, and toward its northern extremity even to a hight of 1,000 to 1,100 feet above Lake Michigan. This elevated plateau embraces the counties of Roscommon, Missaukee, Crawford, and Otsego and large portions of the counties of Ogemaw, Oscoda, Montmorency, Antrim, Kalkaska, and Wexford. In the southern central portion lie Higgins and Houghton lakes, 589 feet above Lake Michigan. These lakes, which are large and beautiful bodies of water, are the source of the Muskegon river which flows thence nearly southerly through a broad, deep valley. The general aspect of this extensive central elevation is that of an undulating plain. There are few abrupt hills, but the streams have cut deep valleys which usually show precipitous banks. The chief rivers which drain this region are the Au Sable on the east, and the Manistee on the west. The headwaters of these rivers almost mingle in Crawford and Otsego counties, the summit of the Peninsula. Flowing also from this summit eastward, northward, and westward are the Thunder Bay, Sturgeon, Boyne, Boardman, and other streams of less magnitude. This portion of the State has been only recently opened to settlement. Within a year railroad extension has brought within the range of development a large tract of country hitherto practically inaccessible. The soil is generally well adapted to agriculture; the native timber is pine mingled with valuable hard woods. In the region bordering on the lakes and on the large streams which empty into them pine lumbering operations are extensively carried on. The western portion of this division, about Traverse bay, has become famous as a fruit-growing region. The soil seems to be specially adapted to the raising of all the common varieties of fruits in great abundance, and the climatic influence of the large body of water to the westward is such as to bring them to great perfection in their season.

THE EASTERN DIVISION OF THE UPPER PENINSULA

has not been extensively explored and, with the exception of a few villages about its borders, and some settlements recently opened, is yet a wilderness. It possesses, however, a fertile soil, an equable climate, and is known to be capable of agricultural development of a high order. Its principal river is the Taquamenon which rises near the center of the St. Mary's peninsula and flows northeastward into Lake Superior. Other streams in this region are the Munnusco, which flows eastward into St. Mary's river, and the Pine which flows southward into Lake Huron. An elevated range of limestone hills extends across the entire southern border from Point Detour to Little Bay de Noquet. These hills rise to a hight of 200 to 300 feet above the lakes, on the shores of which they sometimes appear as bold bluffs, cut into weird and romantic scenery by the action of the elements. Along the north shore of this peninsula is a similar range of hills, in some localities even more lofty and bold than those on the south shore. These extend from the vicinity of Point Iroquois westward, following the direction of the shore line, and sometimes rise to an altitude of 600 feet above the lake, from which they appear as lofty headlands or perpendicular escarpments, as at Grand Sable and Pictured Rocks. The streams which break through this range are interrupted by falls, some of them 40 to 100 feet in hight. The scenery is very attractive. Inland the surface of the country is quite level and for the most part heavily wooded with hardwood forests. The Manistique lakes, three in number, are considerable bodies of water near the center of this peninsula. The Manistique river flows southwestward from them into Lake Michigan. Westward of these lakes the country is flat with a gentle slope to the southward, the watershed being within six to ten miles from Lake Superior. The streams all flow southward and are somewhat sluggish in their character. The country is almost wholly undeveloped as yet, except by the recent building through it of the Detroit, Mackinac, and Marquette railroad.

HIGGINS LAKE, ROSCOMMON COUNTY.

[Area, Seventeen Square Miles.]

MIDDLE DIVISION OF THE UPPER PENINSULA.

The Middle division of the Upper Peninsula comprises what is known as the iron region. This is, along its watershed, quite wild and mountainous in its character and in its more level regions contains immense tracts of valuable pine lands. The watershed extends from the headwaters of Chocolay river north of westward nearly to Keweenaw bay, and thence runs in a southwesterly direction to the boundary of the State. This mountainous range reaches an altitude of 1,250 feet above Lake Michigan, the hills commonly being 800 to 1,000 feet in hight. Lake Michigamme lies at an altitude of 966 feet. To the southwestward the country slopes into a gently undulating plain toward the western boundary of the State. There is, however, near this western border another range of hills known as the Menominee Range, which forms a watershed between the Brulé and Menominee rivers and their tributaries and the streams which flow northward and eastward. This range does not reach the altitude of the northern watershed or approach it in ruggedness of character. The Menominee Range and the range which constitutes the watershed extending from Marquette bay to Keweenaw bay comprise the developed iron region, which is one of the richest in the world, the hills, in some instances, being almost solid masses of iron ore. The intervening region between these ranges is an elevated and gently undulating plain, well watered and heavily timbered with pine, mingled in some instances with hard wood.

WESTERN DIVISION OF THE UPPER PENINSULA.

The Western division is characterized by a somewhat rugged and mountainous watershed beginning at Keweenaw point, which is a rocky promontory extending far into Lake Superior, and running westward nearly parallel with the shore. Mt. Houghton, near the head of the promontory, is 884 feet above Lake Superior, and the range reaches a maximum altitude of about 900 feet. From the base of the Keweenaw peninsula this watershed takes a southerly direction, uniting with and becoming the watershed of the Central division. West of the Ontonagon river a new range develops near the shore, trending at first southwesterly and then more directly westward. This is known as the Porcupine Mountains, whose altitude is 1,000 to 1,400 feet above Lake Superior. In some places near the lake the former altitude is reached, forming mountainous and romantic scenery. In the rocky range which constitutes the Keweenaw peninsula, and thence westward to the Ontonagon river, are the famous copper deposits of this region. A similar range is found running in a nearly parallel direction in Isle Royal, on the other side of the lake, some 80 miles distant, where like deposits have also been found.

The mining industry is the only one to which attention has been given in any marked degree in the Upper Peninsula. But railroad extension is reaching forward into hitherto undeveloped regions, and the country is opening up to profitable lumbering operations and to the successful prosecution of agriculture and horticulture.

A SKETCH FROM THE STATE GEOLOGIST.

To the Commissioner of Immigration:

It affords me pleasure to comply with your request to prepare for you a brief sketch, describing the surface character of the different parts of the State of Michigan, exhibiting in particular the agricultural qualification of such parts.

In my previously published reports on the geology of Michigan I have already

given such a description, and have considered our State as one of the most prosperous agricultural States in the Union, due in part to the industrious character of our farming population as well as to the fertility of our soil and to the congeniality of our climate for all sorts of crops raised in temperate zones. The present sketch is therefore mostly a repetition of statements formerly made.

GEOGRAPHICAL CONFIGURATION OF THE STATE.

The State of Michigan consists of two different districts of a peninsular character, surrounded by great inland lakes. The so-called Lower Peninsula has its longitudinal axis in a north and south direction; it is inclosed within a horse-shoe-like arch formed by the connection of Lake Michigan with Lake Huron. The Upper Peninsula, extending in an east and west direction, is separated from the Lower by the channel connecting the two before named lakes which form its southern border; its northern side is surrounded by Lake Superior. The eastern part of the peninsula forms a comparatively narrow strip of land, whose apex is cut off from the Canadian territory by a lake arm called St. Mary's river, which forms the outlet of Lake Superior into Lake Huron, the latter being about 20 feet lower than the former.

The west side of the Upper Peninsula is connected by a broad base with the north part of the State of Wisconsin; the bed of the Menominee river and of its main branch, the Brulé river, and the bed of Montreal river are adopted as the boundary line between the two States; the Menominee and Brulé form the drainage channel southward into Lake Michigan; the Montreal river leads the waters north of the watershed into Lake Superior.

THE CLIMATE AND SEASONS.

The climate of the southern parts of the State is considerably milder than that of the northern, proportionate to their respective difference in latitude and for other reasons which have a bearing on the climatic character of countries.

In the southern parts, not only all kinds of cereals are raised in abundance and superior quality, but also apples, pears, cherries, plums, and the more delicate peach trees and grapevines are cultivated with decided success. The climate in the northern parts of Michigan is nowhere so severe as to prevent the cultivation of winter wheat and the principal ordinary farm and garden products. There is a difference of about two or three weeks in the setting in of the spring, and the same time earlier the hibernal weather sets in in the fall in the most northern parts of the State, compared with the most southern districts, but the growing season in the north parts of the State is sufficiently long to bring all the ordinary farming crops to maturity, excepting Indian corn, and even this in some seasons ripens there before the frosts appear. Potatoes planted in the northern districts not only yield prolific harvests, but are generally considered as of superior quality to the tubers raised in the south part of the State; turnips, carrots, radishes and cabbages attain in the virgin soil of these northern frontier lands a really astonishing size, rarely observable in the best manured gardens in the south.

SURFACE CONFIGURATION.

The surface of the Lower Peninsula, which has an approximate width of 200 miles from east to west and is about 300 miles in length, gradually rises in gentle undulations from both sides of the surrounding lakes towards the centre to an elevation which in the southern part is about 400 feet and never exceeds 600 feet above Lake Huron. In the northern part of it the ordinary hight of the central plateau lands is about 800 feet above Lake Huron and some summit points reach to an elevation of 1,100 feet. The outlines of these hills are always rounded and scarcely any of them are too steep

for tillage. Most of the country was originally forest land with only few interspersed prairie openings or marsh bottoms. We find also a large number of fine inland lakes from a few acres to several square miles in extent, which often form the head waters of one of the numerous creeks and rivers which flow in an east or west course either into Lake Huron or into Lake Michigan. These rivers are not large enough to be navigable, but they become very important by furnishing ample water power for mills, and particularly as transporting mediums for the logs in the lumbering districts.

FORMATION OF THE SOIL.

The soil covering the Lower and also the greater part of the Upper Peninsula is most generally formed of drift or else of alluvial material; that is to say, it is composed of more or less finely comminuted and triturated fragmental rock masses and of larger blocks, of the most various formations, transported there from the north by moving glaciers and floating icebergs, or washed to the spot by currents of water, as according to all evidences the entire country under consideration was deeply submerged at a time subsequent to the glacier period. This loose material covers the surface of the Lower Peninsula almost universally, often amounting to a thickness of 200 and 300 feet; it has likewise in the Upper Peninsula a large surface extent.

The drift soil is pre-eminently adapted to the growth of plants; its composition of a great variety of mineral substances furnishes an inexhaustible supply of the various mineral constituents necessary for vegetable life. We find sometimes limited areas covered with a light, rather sterile, sandy drift soil; in other places a heavy but quite fertile clay soil occurs, but in most instances the drift soil in Michigan is composed of a mixture of clay with sand and gravel, which combines all the properties requisite for the production of a rich vegetation. It is easily tilled, sufficiently retentive of moisture in dry times, and porous enough in wet seasons to prevent the drowning of crops.

TRANSFORMATIONS AND POSSIBILITIES.

The southern portion of the Lower Peninsula, 40 or 50 years ago an unbroken, desolate, forest land, is now transformed into a mosaic work of carefully cultivated farms interspersed with hundreds of opulent cities and villages; the land has become very valuable and immigrants generally seek for cheaper homes than they can find there. The northern half of the Lower Peninsula is not inferior in fertility to the southern; it is only thinly populated and much of the land is in its primitive forest condition. These forests are the great stores of pine timber, which is exported from Michigan to all parts of the United States. The value of this timber has hitherto chiefly attracted the attention of wealthy, enterprising capitalists to these lands, which by their peninsular position are somewhat aside from the great highways to the west and few immigrants have stopped there to look for homes, access to these districts being formerly rather difficult. Moreover their reputation as being pine lands has been, in the eyes of the agriculturist, a poor recommendation, for pine is generally believed to grow only on a sterile sandy soil; this is true with exclusively pine forests, but these occupy only a small part of the district, and the most valuable pine in Michigan grows scattered through the hard wood, which forms much the larger proportion of the forests and is a sure indication of a good quality of soil.

OPENINGS FOR THE ENTERPRISING.

Large tracts of this better class of land from which the pine trees have been cut but on which the hard wood is left untouched, or of fertile lands cleared of their timber, lie idle and can be bought at reasonably low prices from their present owners; there is also some government land to be had yet at the original price of $1.25 per

acre. Thousands of industrious farmers could go there and lay the foundation of a home with very little expense of money. The difficulty of access to these lands is at present largely removed, as several railroad lines intersect that country. I see no reason why in another period of 40 or 50 years this northern part of the State should not fill up with as dense a population as the southern half has done within the same time; soil and climate are nearly the same and other conditions are more favorable than ever. The first pioneers of the country had to go through all the hardships of frontier life; the settlers of the present day can begin their work in the very centre of civilized society and participate in all its advantages.

THE UPPER PENINSULA AND AGRICULTURE.

Turning our eyes from the Lower Peninsula to the Upper we find also here immense tracts of land covered with hardwood timber of unusually large size, which certainly also indicates a very rich soil. Only few, however, of the thinly scattered inhabitants of that country are found engaged in agricultural pursuits, but the few I met with doing so raised prolific crops of oats and sometimes also of wheat. Grass and potatoes are the best remunerating staple products of these farmers, and their smaller gardens with luxuriously growing peas, beans, turnips, cucumbers, cabbages, and even Indian corn and tomatoes, plainly demonstrate that the climate is not too severe for the culture of all the ordinary farming products, and that even sometimes the Indian corn and the tomatoes ripen there in well protected positions.

As at present various railroads are under construction which intersect a large portion of these rich hardwood lands of the Upper Peninsula, I do not hesitate to recommend them to the attention of the immigrant farming population, and feel confident that they will not be disappointed by selecting such lands for a home, provided they are a diligent and energetic people.

Respectfully yours,

C. ROMINGER,

SEPTEMBER, 1881. *State Geologist.*

SOIL, PRODUCTIONS, AND CLIMATE.

BY R. C. KEDZIE, PROFESSOR OF AGRICULTURAL CHEMISTRY IN THE STATE AGRICULTURAL COLLEGE.

To the Commissioner of Immigration:

In compliance with your suggestion I have prepared a brief statement of some of the facts which will enable a person to make an estimate of the agricultural capabilities of the State. For any person who has visited it, and seen them, no statement of this kind is necessary, for "to see is to believe." But to those who have never visited this part of our country, and whose ears are filled with the groundless assertions of parties who are interested in hurrying the stranger to the far west, a candid and reliable presentation of the natural resources and advantages of Michigan will be of real worth.

SOIL.

The soil of Michigan is of drift formation, and secures the benefits incident to this intimate intermixture of the residues from decomposition of the rock formations. A small part of the soil is prairie, but the greater portion was originally covered with a dense forest. The soil varies in composition from strong boulder-clay to light sand, shading by slight gradations from tile clay loam, to sand; but the great body of soil inclines to clay and loam, though drifting sand is occasionally found.

COMPOSITION OF SOIL.

In order to have reliable data for estimating the agricultural capabilities of our soil three years ago I gathered 31 specimens of representative soils from different parts of the State and submitted these to careful chemical analysis. Specimens of all these soils with a statement of the results of analysis are in your office for inspection by all persons interested. Some persons will not readily interpret these results of analysis, and will need some suggestions to enable them to make up their minds concerning the value of a soil.

A large portion of every soil contributes little or nothing to the plants growing on it, acting only as a mechanical support to the plant, or affording it certain conditions for moisture and heat. But there are certain other substances present in small amount in the soil which are of the greatest importance in plant growth, and without which no plant will grow and arrive at maturity. These chemicals of plant growth are *potash, lime, phosphoric acid,* and *sulphuric acid.* Let us see how much of these substances must be present to make a productive soil, and how much is present in these representative soils.

(a.) *Potash.* The amount of potash in a soil is often intimately associated with the quantity of clay, but even in deep sandy soils the amount should not fall below one part in a thousand. The smallest proportion found in any of these soils was five in a thousand, and in many of them there were more than twenty parts in a thousand.

(b.) *Lime.* In sandy soils the lime should not fall below one part in a thousand, and in heavy soils five parts. In the lightest sandy soil examined there were three and a half parts of lime, in clays from six to twenty parts.

(c.) *Phosphoric acid* is most intimately associated with fruitfulness in any soil

and less than 5 parts in 10,000 of soil would be regarded as a serious deficiency, and to secure good crops 10 parts should be present even in sandy soils. The smallest amount found in any of these soils is 13 parts in 10,000, and in clay and prairie soils it amounts to 30 to 44 parts.

(d.) *Sulphuric acid* should be present in a fertile soil to the amount of 2 to 4 parts in 10,000, while the smallest found in any of these soils was 8 parts.

It is thus seen that the lightest of these soils contains enough mineral matter to sustain paying crops.

An examination of the physical properties of these soils, especially their capacity to imbibe and retain moisture, shows that most of them are capable of producing large crops.

WINTER WHEAT

can be grown in all parts of our State, and indeed Michigan is distinguished as the winter wheat State. The fact that the State averages not far from thirty million bushels of winter wheat each year, and that the average production for the whole State is 17 to 19½ bushels per acre, is proof of the capability of the State in this respect. Corn, oats, barley, and potatoes can be raised in all parts of the State.

FORESTS.

With the exception of a few prairies in the southern part, and a few plains in the northern part of the State, Michigan was originally covered with a dense forest. The trees were mostly hard wood, consisting of oaks, elms, ashes, cherries, hickories, walnuts, maples, and beeches, with some basswood, whitewood, and soft pine. In some low grounds the tamarack is found. These tamarack swamps used to be held up as the especial opprobrium of Michigan, but it is now found that when cleared and drained they afford the best meadows, giving two to three tons of excellent hay to the acre. I know of some clear-headed men who have bought and subdued these tamarack swamps, and the first crop of hay yielded a net profit sufficient to pay for the land and all the improvements. They thus had good farms without cost save a shrewd foresight and the use of wide-awake brains.

Besides an inestimable blessing in the form of an abundant supply of timber and fuel, forests are a great benefit to the State in equalizing the rainfall, preventing floods, regulating temperature, and moderating the force of winds. I will again call attention to the influence of forests when I speak of the climate of Michigan.

MICHIGAN PINE LANDS.

In the central and northern parts of the State are the most celebrated pine forests of the continent, and our pine lumber has a good reputation everywhere. Many persons suppose that these pine lands are valuable only for their lumber and have no agricultural value. In this they are seriously mistaken. Our pine lands differ from the hard-pine forests of the south in the fact that *our soft pines are everywhere mingled with an abundant growth of hard-wood trees*, and such forests grow on a soil of excellent agricultural capabilities.

I had a conversation with an intelligent member of our Legislature who gave a clear statement of how the lumber camps became farms. "We went there to lumber, and then to quit: we had no more thought of farming than of flying. We planted a few vegetables in the cleared space around our lumber camps, and the yield was so remarkable that we cleared off a field and put it into grain, and the harvest was so bountiful that before we knew it we were farming. That's the way Sanilac county was settled. Here is my friend, the representative from Huron county, who will tell you the same story for his county." And the same story can be told for a dozen counties more.

I have traveled through many of these pine districts and found that very generally the lands cleared from trees form a strong sward from the grass-seeds accidentally dropped in the soil by hay used to feed the teams employed in lumbering. Some of the lumber roads were so covered with timothy and clover as to afford a considerable quantity of hay, and one lumberman told me he had secured four or five tons of hay from the lumber roads used the previous winter. A soil that will form a dense sward the first season from grass-seed accidentally sown by hay drawn over the road will not disappoint the husbandman.

The assumption that because a district is good for lumber it cannot be good for anything else is most misleading. The fact that a soil can grow such a magnificent forest would justify us in assuming that it would grow grains and vegetables as well as trees. But the enormous wealth of this region in its timber and lumber has so filled the public eye that it could not see the greater wealth of its soil.

LAKES AND RIVERS AND THEIR INFLUENCE.

Michigan is surrounded by lakes on three sides, and only the south has a land border. These lakes of purest water are of such vast extent that they have well been named "the unsalted seas." The influence of such large bodies of water on west, north, and east of our State, fencing us off from the great storms which ravage other portions of the continent, mitigating excessive cold and heat, and giving us the soft and balmy atmospheric characteristics of "water climate," cannot fail of imparting an agreeable climate to the peninsular State. Geographers never tire in discoursing of Europe, honey-combed and penetrated by the sea, in contrast with the unbroken mass of Africa and Australia. The same penetration of water with its control over climate is seen in the configuration of Michigan. This relation of water, with the magnificent forests, gives a climate to our State not found elsewhere away from the sea-board.

CLIMATE.

Michigan lies in the same latitude with southern France and northern Italy. The climate differs from that of European countries in the same latitude for two reasons: 1st, this State has a mean elevation above the sea of about 800 feet, and its temperature is two degrees Fah. lower in consequence of such elevation above the sea level; 2d, like the American climate in general, the climate of Michigan partakes of the peculiarities of the *land climate*, not being modified and controlled by the warm breath of the Atlantic like western Europe. The American climate is colder on the average than that of European countries lying in the same latitude; the extremes of heat and cold are greater, the winters being colder and the summers hotter than corresponding seasons of European countries having the same mean annual temperature.

MEAN TEMPERATURE OF MICHIGAN.

The mean temperature of Lansing, (capital of the State), as determined by 18 years of continuous meteorological observations taken at the State Agricultural College, is 46°.71 Fah. or 6°54 Reaumur. Lansing has the same mean temperature as Berlin, yet the temperature of the three summer months is the same as that of Vienna, and of its three winter months the same as Stockholm.

METEOROLOGICAL TABLE FOR MICHIGAN.

The following table gives the mean results of tri-daily observations taken at the Agricultural College for 18 years, and affords reliable data for determining the leading features of our meteorology. I know such tables are commonly passed over as dry and unprofitable reading, but if carefully studied this table will give a good insight into the climatic conditions of our State:

Meteorological Table.

MONTHS.	MEAN MONTHLY TEMPERATURE.			Percentage of Humidity; complete saturation=100.	Percentage of Cloudiness; complete observation =100.	Rain and melted snow in inches.	Snow in inches.
	Fahrenheit.	Reaumur.	Centigrade.				
January	23°.14	-3°.93	-4°.92	85	73	1.97	9½
February	24°.42	-3°.37	-4°.21	85	64	1.79	9½
March	31°.65	—.16	—.19	84	65	2.67	11
April	46°.01	6°.22	7°.78	69	55	2.65	2
May	58°.68	11°.86	14°.82	71	50	3.07	½
June	68°.05	16°.02	20°.03	72	49	3.85	0
July	71°.81	17°.69	22°.12	76	45	3.45	0
August	69°.59	16°.71	20°.88	78	47	2.79	0
September	59°.75	12°.33	15°.43	76	49	3.00	0
October	46°.79	6°.57	8°.23	78	59	2.20	1
November	35°.20	1°.42	1°.78	85	68	2.00	5½
December	25°.38	-2°.96	-3°.68	86	76	1.87	9½
Year, means	46°.71	6°.53	8°.17	79	58		
Year, sum						31.31	48½

WHAT IT MEANS.

Let us study this table a little and see what is the climate of our State.

Rainfall. The mean annual rainfall is a little more than 31 inches and is ample for all crops. It is very evenly distributed through the year, though a little more than half falls in the five months of most active growth, from May to October. This evenness of distribution is a very important condition of productiveness. On one hand we are saved from frequent and protracted drouths such as afflict the treeless west, and on the other hand we are spared from the excessive and sudden rainfalls where everything is endangered by inundation.

This equable rainfall in the State is one of the great blessings we receive from our forests. The water-spouts, in the prairie States, which come down with swift destruction, sweeping away flocks and herds, swallowing up in an hour the crops of the whole year, and flowing out of the country in a few hours to leave it again parched and dry, are unknown in this State. So also are the cyclones and whirlwinds which are the terror of the prairie States of the west during all the summer months, and often cause fearful destruction of property and dreadful loss of life. And so too are the "blizzards" of the western States—wind storms of great violence with tempests of snow and cold such as neither man nor beast can face for any time and yet live. To those who know the nature, frequency, and horror of these storms of the far west, such facts are most significant. Our trees are sentinels of safety, and disarm nature of her terrors.

Snow. The average annual snowfall in the center of the State is four feet, but it is rare to find more than 12 inches of snow on the ground at any one time. The snow affords two or three months of sleighing each winter, enabling the farmer to draw logs, lumber and stone, market his crops, and perform the heavy transportation of the year with the least draft upon his animals. The snow is also invaluable in

protecting winter wheat and meadows from damage by frost. In the northern part of the State and near the great lakes, the snow begins to fall before the ground freezes, and potatoes, turnips, etc., are left in the ground all winter without injury by frost, and are gathered in excellent condition after the snow melts in the spring. The following extract will show how the snow protected the ground in January, 1881:

"A letter from Petoskey to the Kalamazoo Gazette says: A farmer dug holes in the snow, a few days since, in which to plant fruit trees, and found the earth as free from frost as it is in summer. It was in a field of growing wheat, and he found his wheat as fresh and green as it was before the snow fell. This peculiarity of the winter season in these northern regions is undoubtedly one of the reasons why wheat yields such large crops. It does not get stunted by freezing, as it frequently does in the southern part of the State."

Humidity. By reference to the table it will be seen that the air on the average is more than three-fourths saturated with moisture. Even in the hot summer months the air generally contains 75 per cent of the amount of moisture it is capable of holding at that temperature. In other words it is devoid of burning heat, in striking contrast with the scorching air of the treeless prairies of the far west.

Cloudiness. But while the air is tempered and softened by watery vapor, we are free from fogs and gloom. A fog is of rare occurrence, and the sky is usually bright and clear. The table shows that from April to November only one-half the sky is covered with clouds. Brightness and sunshine characterize our climate, and the air contains abundance of ozone.

THE FLORA OF MICHIGAN.

BY PROF. W. J. BEAL, OF THE STATE AGRICULTURAL COLLEGE, LANSING.

Two very capable and enterprising young men of Hubbardston, Ionia county, have spent much time within the past ten years in studying the Flora of Michigan. Their names are C. F. Wheeler and Erwin F. Smith.

The State Pomological report for 1880 contained a catalogue of the flowering plants and vascular cryptogams prepared by them with a preface and full notes in connection with most of the species. To a large extent, the first part of the following article is gleaned from this catalogue.

The flora of the upper peninsula is in many respects decidedly northern, resembling in part that of British America, and in other respects that of north New England and Canada. Pines, firs, cedar, larch, junipers, elms, poplars, black ash, basswood, maples, and birches are the principal trees.

The proximity of the great lakes exerts a marked influence in equalizing the temperature and the effects are marked upon our flora.

Trees like the tulip tree (*Liriodendron Tulipifera*), paw paw (*Asimina triloba*), red bud (*Cereis Canadensis*), coffee tree (*Gymnocladus Canadensis*), honey locust (*Gleditschia triacanthos*), dogwood (*Cornus florida*), pepperidge (*Nyssa multiflora*), mulberry (*Morus rubra*), which belong to Ohio and Central Illinois, have crept northward, favored by the mild influence of the lake winds through the central and western part of the lower peninsula, often beyond the middle. The same explanation applies equally to the fact that many portions of the State can raise fine peaches and other fruits which seem to belong to such climates as are found in Delaware and Maryland, which are much farther south and near the Atlantic ocean.

As might be expected from the uniform surface of the lower peninsula, the flora is much alike throughout.

The sandy and stony drift of many river valleys in the lower peninsula supports a heavy growth of oak, frequently interspersed with black walnut, hickory, and white ash, while the margins of the streams and the neighboring swamps abound in soft maples, swamp and chestnut oak, black ash, elm, hackberry, sycamore, and butternut. Willows, dogwoods, viburnums, and buttonbush are common shrubs in swamps, and hazel, hawthorn, wild cherry and plum, June berry, and witch-hazel are abundant on the drier ground.

On the uplands and away from the streams clay loam and a black soil supersede the sands and gravels of the valleys. The prevailing timber here is beech and maple and oak in about equal proportions. Beech and sugar maple generally grow together, forming magnificent forests of great extent. Tamarack is a valuable timber often found in swamps of the southern part of the State. Farther north arbor vitæ, often called white cedar, takes its place.

Immense groves of large, straight, sound sugar maples abound in Grand Traverse county and eastward, also deep forests of hemlock and yellow birch mixed with a tall growth of striped maple, having underneath a tangled growth of ground hemlock, and under all a carpet of *Lycopodium* or club moss. In many places large tracts of upland, and swamps also, produce bushes bearing huckleberries in great abundance.

In many portions of the State, north of the central, large quantities of fine blackberries and raspberries are produced.

The pine country proper lies between the two tracts described and affords the leading lumber in the markets. There are two species, *Pinus strobus* (white or soft pine) and *P. resinosa* (red or Norway pine), which furnish all the pine lumber.

In the remaining portion of this paper, I have gleaned freely from my report on the Forests of Michigan at the centennial exposition, printed in the Agricultural and Pomological Reports of our State in 1875.

Hickory of three species of the best quality grows in the southern part of the State. Chestnut is found in the southeastern part, and grows well when planted in many other portions. The canoe birch is abundant northward; also arbor vitæ in the swamps. The latter is very valuable for telegraph poles and fence posts.

Red cedar in limited quantity is found about lakes and along streams. With cultivation it grows quite rapidly.

THE MOST COMMON TREES OF THE STATE

are beech and sugar maple. They are all over the southern peninsula on what is known as timbered land. Much of the wood of sugar maple northward is curly or bird's-eye. It is very useful for furniture and certain parts of railway coaches. Large quantities are exported. The white oak is another valuable tree, found in great abundance and perfection in most parts of the southern peninsula. It disappears as we reach the pine to the north.

White ash is also widely distributed, of excellent quality and stands without a rival for farm implements, for cabinet ware, oars, floors, and for finishing off churches and dwellings. It is remarkable for its elasticity, strength, and beauty It grows rapidly and often becomes a large tree.

Black walnut is becoming scarce in Michigan where it was once abundant. It is an indication of good land. Black cherry, the timber of which is red, is common, durable, and valuable. White pine has been referred to as affording all of our soft pine lumber.

Rock or white elm, *Ulmus racemosa*, is abundant, and a very valuable timber on account of its toughness.

It is found in great perfection in the form of large, tall, straight trees in the central part of the southern peninsula. It is now very extensively used in making many portions of farm implements, railway cars, etc. Black ash is valuable, growing on bottom land, and is used for rails, hoops, baskets, and lumber for cabinet ware.

Lumbering has, in many portions of the State, been slovenly and wastefully carried on. Much loss has been received from forest fires. Hereafter greater economy will doubtless attend the business of lumbering.

LARGE TREES.

High trees are found in some congenial spots which are a little lower than the surrounding surface. At Clam Lake an old lumberman assured me that he could furnish spars of pine 175 feet long and not over two feet through at the butt. He had cut them 200 feet long.

The following table shows the locality of some of these trees:

Dimensions of Large Trees.

Common Name.	Diameter.	County.
White ash	5½ feet	Allegan.
Black ash	3 feet 11 inches	Wayne.
Yellow birch	3 feet 6 "	Sanilac.
Black cherry	7 feet 6 "	Oakland.
Buttonwood	8 feet 6 "	Lenawee.
"	8 feet 10 "	Ionia.
"	11 feet	Kent.
Black walnut	9 feet 6 inches	Hillsdale.
" "	11 feet	Allegan.
Balsam poplar	3 feet 7½ inches	Oakland.
Butternut	3 feet 9 inches	Saginaw.
Cottonwood	6 feet	Kent.
"	10 feet	
American elm	8 feet	Manistee.
Grapevine	10 inches	Lenawee.
Hickory	3 feet	Calhoun.
Honey locust	2 feet	Lenawee.
Hemlock spruce	5 feet	Allegan.
Ironwood	19 inches	Allegan.
Sugar maple	6 feet	Otsego.
Mulberry	1 foot 4 inches	Wayne.
White oak	5 feet	Allegan.
" "	7 feet	Barry.
" "	8 feet 4 inches	
Swamp oak	7 feet 8 inches	Wayne.
White pine	6½ feet	Grand Traverse.
Red cedar	3 feet	Ionia.
Sassafras	4 feet 4 inches	Allegan.
Tamarack	3 feet	Ingham.
White cedar	4 feet	
" "	5 feet	Grand Traverse.
Tulip tree	6 feet	Ingham.
" "	6 feet	Monroe.
Pear tree	3½ feet	Monroe.
Weeping willow	4 feet 6 inches	Lenawee.
Pine	9 feet	Montmorency.

For lack of accurate records no doubt we have not given the measurements of the largest trees. In Oakland county, a tulip tree furnished 5,060 feet of lumber. On the Muskegon a white pine scaled nearly 9,000 feet.

GREAT VARIETY OF SPECIES.

Great Britain has about ten species of trees which are natives of her soil. Michigan, with much less territory, has about ninety species, nine times as great a variety. Michigan has six species of maple of tree size, a basswood, a whitewood, honey locust, Kentucky coffee tree, two cherries, a pepperidge, five ashes, a sassafras, three elms, a hackberry, a mulberry, a buttonwood, black walnut, butternut, six hickories, about twelve oaks, a chestnut, a beech, five tree birches, one larch, one arbor vitæ, and a red cedar. The flora of Michigan contains 1,634 species (and probably more will be found) including 165 trees and shrubs. At least 40 of the trees and shrubs are worthy of cultivation for ornament.

BEAUTY OF MICHIGAN WOODLANDS.

In the tropics of South America we should find 6,000 species on a territory where

we should find 60 species in Michigan. In the tropics a forest is seldom seen to compare with the grandeur of a forest of our white pines. The mixtures of evergreens and deciduous-leaved trees, the shrubs, the autumn tints, the streams, the hills and valleys, our beautiful lakes, with the different seasons of the year, and different phases of the weather, lend a perpetual charm and freshness to our Michigan woodlands.

THE GRASSES.

There are 139 species of grasses indigenous to Michigan and 176 species of sedges. The latter are often mistaken for grasses by those who are not botanists. Many of these on plains and in marshes afford excellent pasture and hay for use by the pioneer. The State is remarkable for the excellent quality of its meadows and pastures which are seen in the older portions. These are made up of several wild and introduced species, the number of which can no doubt be largely increased with greater profit to the farmer.

INJURIOUS INSECTS.

While we have a good variety which are abundant enough for the scientist, and some kinds more abundant than is desired by farmers and fruit-growers, yet injurious insects are by no means so numerous as they are farther west and south. Entomologists assure us that we need have no fears of chintz bugs or the Rocky Mountain locust. The army worm is very seldom troublesome, and then only in limited localities.

HEALTH IN MICHIGAN.

BY HENRY B. BAKER, M. D., SECRETARY OF THE STATE BOARD OF HEALTH AND SUPERINTENDENT OF VITAL STATISTICS.

Man makes most rapid and greatest progress in that belt or zone within which the average annual temperature does not much exceed 60° F. or fall much below 45° F. As regards productiveness of soil, and consequent prosperity in food-supplies, the warmer portion of the zone is believed to be favorable, but the evidence seems conclusive that for hardiness of constitution and general and special healthfulness the coldest portion excels. The average annual temperature in central Michigan is about 46.5° F. But Michigan is exceptionally well situated for climatic influences. Extreme heat and extreme cold endanger life and health. Michigan being surrounded except on the south by large bodies of water, the temperature in summer is not as high as it otherwise would be, and in winter it is not as low. How this is favorable to human health may perhaps be better appreciated by noticing how it affects tender plant life; it is well-known that peach trees are easily killed by extreme cold, yet western Michigan is remarkable for its peach crops, made possible in this latitude by the mildness of the winter climate, modified as it is by the large bodies of water in the great lakes which nearly surround the State. This modification of the winter climate in Michigan is undoubtedly favorable to human health, by lessening the danger from inflammation of the lungs, bronchitis, influenza, etc.; and the cooling of the air in summer by the water of the great lakes is favorable by lessening the danger from diarrhea, dysentery, and the other diseases which are usually coincident with high temperatures.

Many of the diseases which most commonly kill people are spread by ignorant and careless disregard of sanitary law. Safety from such diseases is impossible in States and in communities where such disregard is common. In Michigan the people are fast becoming active in efforts for the general promotion of the public health. It was one of the first States in the Union to establish a State Board of Health, and local boards of health are now quite generally organized throughout the State. The people seem to place a high estimate upon the value of human life and health; during the session of 1881 the State Legislature passed 48 acts bearing directly or indirectly upon this subject. No man can live to himself alone,—he is greatly dependent upon his surroundings and fellow-citizens for safety to life and health. One of the greatest recommendations for Michigan as a State to *live* in is the intelligent regard of its citizens for human life and health.

The conditions in Michigan being favorable for public health and happiness,—what is the positive evidence of the general result, as shown by the death-rate? Is it possible to compare the death-rate in Michigan with that in other States and countries? Unfortunately for our present purpose, governments have nowhere paid sufficient attention to this subject of life and health to enable one to make accurate and complete comparisons of different States or countries. Considering such masses of statistics as are supplied by the census of Great Britain and of the United States, etc., this may seem strange, but it is true. The actual death-rate in these countries has not yet been learned, though for many cities it is quite closely ascertained. Censuses of States and countries collect statements of deaths which occurred during the year

preceding the census, and many deaths are omitted because of movements of relatives and friends, and the forgetfulness of other people. The omissions are probably not the same in all States, because the movements of the inhabitants are not equal. According to the United States censuses preceding that of 1880 (the results of which are not yet published) Michigan has had a very low death-rate, lower than that of most other States. After the census of 1870, the writer undertook to ascertain, by means of statistics collected for the same time by another set of men than the census marshals, what proportion of the deaths in Michigan were omitted and what the actual death-rate was. A "Life Table," similar to those employed by insurance companies was then made, showing for Michigan the average years of life after each age, and for persons of each sex and at every age the probable duration of life in Michigan. Obviously it will not do to compare a death-rate thus obtained with the death-rate of any State ascertained directly from the United States Census, because, to make my Life Table for Michigan, the deaths by the census were nearly doubled—being multiplied by 1.86; but even then the death-rate was so small that it became desirable to compare it with an exceptionally low one. Dr. Wm. Farr, the most eminent vital statistician, has constructed a Life Table for the Healthy Districts of England, concerning which he has said:—

"We have no means of ascertaining what the rate of mortality would be among men living in the most favorable sanitary conditions; otherwise observations for a term of years on a considerable number of such persons would supply a standard rate with which other rates could be compared. In the absence of such a standard, the districts of England in which the mortality rate did not exceed 17 annual deaths in 1,000 living have been selected as the basis of a new Life Table."

Comparing my Life Table for Michigan with Dr. Farr's Life Table of the Healthy Districts of England it is found that they are almost identical, for all ages except under five years and over eighty years, the exception under five years being explained in part by the fact that for the Michigan table the still-births were counted as deaths, while in England they were not; the exception over eighty years being that among both males and females the death-rate seemed to be less in Michigan than in England. The total annual death-rate in all England is about 22 per thousand inhabitants. The total annual death-rate in Michigan was, according to my Life Table, about 17.4 per thousand inhabitants. The inhabitants of Michigan now number nearly 1,700,000. In that number of people the difference between a death-rate of 22 and one of 17.4 per thousand amounts to over 7,500 lives; and, according to the Michigan Life Table, this number of persons are saved in each year over what would die if the death-rate in Michigan equaled that in all England.

THE STATE WITH REFERENCE TO MALARIOUS DISEASES.

BY HENRY F. LYSTER, A. M., M. D., PROF. OF THEORY AND PRACTICE OF MEDICINE, MICHIGAN COLLEGE OF MEDICINE, MEMBER STATE BOARD OF HEALTH, ETC.

Is there an exceptional prevalence of malarious diseases in Michigan? It can be truthfully answered that there is not. This statement may be verified by a review of the statistics of disease in this and in the neighboring States, and by studying the well observed laws which govern the development of malaria. Lorin Blodgett, in his valuable work, The Climatology of the United States, 1857, says: "Malarious fevers are found where the temperature is elevated in a moist atmosphere, and where a comparatively rapid decomposition of organic matter is as a consequence taking place."

The temperature of the atmosphere in Michigan is not so elevated as it is in the neighboring States, and the amount of moisture is less than in any State lying east of the Mississippi river, and as a consequence the decay of vegetable matter is not so rapid as in districts lying south of us, so that the climatological conditions are not so favorable for the production of malaria.

Malarious diseases, such as intermittent fever, agues, malarial dysentery, autumnal fevers, typho-malarial fevers, are more prevalent as we approach the tropics, and diminish in importance as we go north. Diseases of the above types are decidedly limited both in amount and severity in the northern two-thirds of the State on account of its climatology, and in the remaining third, containing nine-tenths of the population, they have been in a great degree removed, and largely mitigated in their effect, by the general improvement of the country, and particularly by drainage. It has been estimated that malarious diseases have diminished seventy-five per cent from these causes in the last twenty years.

Lorin Blodgett, in the work above cited, states that "while a few cases will be found in the vicinity of the lakes from which the Mississippi river rises in lat. 47° and in the east in the vicinity of Montreal, it becomes an unimportant factor in disease north of lat. 45°. In the Lake region, in elevated parts of New York and New England, intermittent fevers are excluded from all districts of 1,200 to 1,500 feet elevation above the sea level, but the average limit would be nearly at the 45th parallel." Michigan lies between parallel 41°50′ and 48° north latitude, and has a central elevation of from 660 to 1,700 feet above the sea level. While the littoral margins of the State gradually fall to the lakes, which are 581 feet above the sea, the average elevation of the interior portion of the State would reach between 400 and 600 feet above the lakes in the Lower Peninsula, the extremes varying in the meridian center between seventy-five feet in a limited spot and ten or eleven hundred feet, showing an average elevation of eight hundred to one thousand one hundred feet above the tide water level.

Malarious fevers were formerly common in New England and in New York, and may now be found in alluvial lands and in the vicinity of marshes, particularly near the sea level. Climatologically malaria would now be endemic in that section, and the reasons for its removal are found in the cultivation of the country. When local conditions favor its origin in Michigan, the same conditions would generate malaria much more effectively in any locality lying between Michigan and the Gulf of Mexico. If malarial poison increases in quantity and virulence from lat. 45° north toward the south, it can be well understood, and the fact must be accepted as proven, that malaria in southern Michigan is not so general or so destructive as it is south of the southern boundary of the State, in localities similarly situated with regard to water and drainage.

The natural surface configuration of the State favors the removal of malaria, as the country is drained and cultivated. With the exception of a narrow depression between Saginaw bay and the mouth of Grand River, the central portion of the Lower Peninsula rises in the interior to a hight of from 400 to 1,100 feet above the lakes, giving complete water sheds to the rainfall. The natural drainage by the rivers which find their way to the great lakes is very complete. The whole State has an abundance of pure water for drinking purposes which may be obtained from wells and springs. In the Upper Peninsula and in the upper half of the Lower Peninsula the clearness and purity of the water of the lakes and rivers is a matter of general remark. The drift formation, rolling in its surface configuration, composed of clay and gravelly loam, is particularly favorable for affording water of excellent quality.

With all the natural advantages of climate and location which Michigan possesses it has had in former years its malarial history, for reasons similar to those which have

obtained in all new countries. To-day it is no more malarious than New York or Ohio.

Where new land is opened up, particularly if it is bottom land or alluvial deposit, there will be for a couple of years an increase in the development of malarial disease, in any portion of the State, the same as will take place in this latitude east or west. Where the natural water courses are dammed up for logging purposes and low lands are overflowed, there will be found the autumnal fevers, agues, and dysenteries which follow such flagrant violations of sanitary law.

There are certain limited districts in the Lower Peninsula where the elevation is not great, and where the proportion of marsh and bottom land is large, and where the rivers, naturally sluggish, have been dammed in their principal branches for logging purposes, the conditions of which favor the development of malaria and all its consequences.

A local Board of Health exists under a general law in every township and village in the State, and has full authority to abate nuisances injurious to the public health. By the settling up of the country, the carrying out of the laws relative to cutting county ditches and abating nuisances, and by reclaiming overflowed lands, these districts are becoming each year more and more limited in number and extent.

THE STATE INSTITUTIONS.

In treating of the institutions of Michigan those of an educational character take natural precedence and, as introducing them, a brief sketch of the origin of the system which has been established in this State is appropriate.

THE PUBLIC EDUCATIONAL SYSTEM.

No State has, in proportion to its wealth, done more than Michigan for the support of free schools of all grades. Its educational system has its secure foundation both in the organic law of the commonwealth and in the traditions and affections of the people. Its history ante-dates the political existence of the State itself.

NATIONAL PROVISION FOR COMMON SCHOOLS.

In 1785 Congress, in an ordinance providing for the sale of lands in the territory north of the Ohio river, reserved for the support of public schools "section 16" in each township to be organized in that vast domain. Practically, this action set apart for educational uses one-thirty-sixth of all the public lands in that region. The historical "Ordinance of 1787," which provided for the government of this Northwestern Territory, expressly declared, "schools and the means of education shall be forever encouraged." In 1804 Congress, by statute, repeated its previous reservation of "section 16" for the support of the common schools; this action was confirmed in the law of 1805 organizing the territory of Michigan, and its acceptance was made one of the conditions of the ordinance of 1836 admitting Michigan into the Union. The wise policy of providing for the free education of the people, thus outlined in the enactments of the national government, found sincere and intelligent support in the pioneer settlers of the State, who came chiefly from New England and New York, and brought with them the broad views upon educational topics which had already made those communities prosperous and influential. Accordingly well-directed steps were taken at an early day to see that the liberality of Congress was made useful in the highest degree, and the foundations were laid broadly and deeply of a school system which to-day rivals that of any State or country in its completeness and its practical value.

THE ACTION OF THE STATE—PLEDGES OF ITS ORGANIC LAW.

The territorial officers, moved by this impulse, legislated repeatedly upon educational subjects, seeking to establish a university, requiring schools to be maintained in every township containing fifty or more householders, and finally framing a system of township school inspection subject to the general supervision of a Superintendent of Common Schools appointed by the Governor. Congress also, in 1826, appropriated public lands in the territory to an amount not exceeding two townships for the support of a university. Upon the admission of Michigan as a State, its educational policy was given more definite form, while the perpetuity of its infant free school system was guaranteed by the express declarations of its organic law. The State, and not each township, was then made the custodian of all the lands covered by the "section 16" grant. Experience soon demonstrated the wisdom of this course, and

A MICHIGAN SCHOOL HOUSE—PUBLIC GRADED SCHOOL, FLINT.

Michigan realized benefits from the munificence of Congress, which it is still enjoying, but which were largely lost by some of the neighboring States which allowed each township to do as it pleased with its "section 16." Again, it was at that time decided that the proceeds of this particular grant should be applied to the support of the primary schools exclusively, and from this construction of the law there has been no departure. The original constitution of the State also declared that all grants of land for the support of schools should be "inviolably appropriated" to such purpose, and directed the Legislature to "provide for a system of common schools, by which a school shall be kept up and supported in each school district at least three months in each year." The present constitution, framed in 1850, reaffirms and broadens this guaranty in these words (article 13):

SECTION 2. The proceeds from the sales of all lands that have been or hereafter may be granted by the United States to the State for educational purposes, and the proceeds of all lands or other property given by individuals, or appropriated by the State for like purposes, shall be and remain a perpetual fund, the interest or income of which, together with the rents of all such lands as may remain unsold, shall be inviolably appropriated and annually applied to the specific objects of the original gift, grant or appropriation.

SECTION 4. The Legislature shall * * provide for and establish a system of primary schools, whereby a school shall be kept without charge for tuition, at least three months in each year, in every school district in the State.

The same instrument provides specifically for the maintenance of the university, the normal school and the agricultural college, and declares that institutions for the benefit of the deaf, dumb, blind, or insane shall always be fostered and supported.

A MICHIGAN SCHOOL HOUSE—PUBLIC GRADED SCHOOL, LANSING.

THE PLEDGES OF THE STATE MORE THAN REDEEMED.

The legislation of this State in regard to its educational interests of all kinds has more than met the requirements of the territorial ordinances and the pledges of its organic law. Michigan has supplemented the liberal gifts of the general government by such State and local taxation as has been necessary for the development of a system of free education, embracing all grades of general education from the primary school to the highest university courses of study in literature, science, and the arts, and all branches of technical and professional education with the exception of military science and theology. It has in the fullest sense "encouraged" "schools and the means of education." That this enlightened policy will be permanent cannot be doubted, for it is upheld by the traditions and laws of the State, by the valuable character of its results, and by the profoundest convictions of the popular judgment. The future settler in Michigan, however humble, will always find the door of the free school ready to open at his touch.

THE PRIMARY SCHOOLS.

The common schools of Michigan are the special pride of its people. They are the base of its educational system, and they constitute by far its most important part, for the instruction they supply forms the chief mental training for the every-day duties of life of the great mass of the children who come to maturity in this State.

CLASSIFICATION OF THE SCHOOLS.

These schools are known as graded and ungraded. The latter exist in the smaller districts, and preserve the chief features of the original primary school. They occupy inexpensive buildings, are under the charge of but one or two teachers, and are almost exclusively confined to instruction in the elementary branches. The graded schools are found in the more thickly settled rural districts, and in the villages and cities. Their courses of study range from the primary department through the grammar school to the high school, and their pupils are graded in classes according to their degrees of advancement. They are generally the product of the union of one or more districts, and usually occupy a large central building, possess a corps of teachers, and are attended by several hundred children. In some of the larger cities separate edifices have been erected for the high schools, but this is not the rule. The graded school, as fully developed in Michigan receives the child ignorant of the alphabet and in a few years fits him or her for admission to the university. The ungraded districts of Michigan were 6,191 in number in 1882, and their schools were attended by 224,250 children. The graded school districts were 439 in number in that year, but 161,254 children enjoyed the benefits of their thorough and advanced systems of instruction.

THE CHILDREN OF MICHIGAN SCHOOL-GOING.

All persons five years of age and over, of whatever race, color, or condition, are entitled to admission without charge to the public schools of Michigan in the districts in which they reside. The State takes annually a census of the children between the ages of five and twenty; their number in 1882 was 538,356, and the number actually attending school was 385,504; there were also in that year in the State 20,577 children who attended private or denominational schools. Comparatively few children go to school at five, and the majority probably not under seven years of age, while a large percentage commence the active work of life at fifteen or sixteen. Making allowance for these deductions, the average attendance in 1882 of 406,081 out of a school population of 538,556 shows that the great mass of the children of Michigan between the ages of seven and sixteen are school-going.

A MICHIGAN SCHOOL HOUSE—PUBLIC GRADED SCHOOL, PONTIAC.

THE SCHOOLS ENTIRELY FREE AND MAINLY UNDER LOCAL CONTROL.

Tuition is absolutely free to resident pupils in all the public schools, except that a fee may be required for advanced studies in the high schools, although the reports show only an occasional case in which this is done. Their immediate administration is entrusted to the districts themselves and to the school officers elected annually by the taxpayers. The State exercises a general supervision over the system, but does not interfere with the freedom of local action within the law. It provides for the holding of teachers' institutes annually in every county containing over 1,000 children between five and twenty years of age; at their sessions practical instruction in the best methods of doing their work is given to the local teachers by the State Superintendent or by experienced educators of his selection.

THE SCHOOL YEAR AND THE COURSES OF STUDY.

The constitution of the State provides that a free school shall be kept at least three months in each year in each district, and the general law requires at least five months of school in districts having over thirty and less than eight hundred children of school age, and not less than nine months in districts with more than eight hundred. The courses of study in the various grades are as follows:

Primary Schools: Reading, spelling, writing, arithmetic, and geography.

Grammar Schools: Reading, arithmetic, geography, United States history, grammar, spelling, writing, composition, and in many districts music and drawing.

High Schools: Grammar, arithmetic, geography, composition, algebra, history, physical geography, rhetoric, geometry, book-keeping, botany, physiology, natural philosophy, civil government, zoölogy, political economy, chemistry, astronomy, moral and intellectual philosophy, and the Latin, Greek, French, and German languages. These numerous studies are arranged in various courses, from which pupils and guardians make their selections.

As a rule four years is required for the completion of a regular course in each grade.

PUBLIC AID TO SECTARIAN SCHOOLS ABSOLUTELY PROHIBITED.

The law absolutely prohibits any application of the public moneys to the support of schools of a sectarian character, whether under the control of any religious society or made sectarian by the action of the district officers themselves.

THE REVENUE OF THE COMMON SCHOOLS.

The revenue for the support of the primary schools is derived from the following sources:

1. *The Primary School Fund.* This principally consists of the proceeds of the original "section 16" grant. Under that grant the State came into possession of 1,077,209 acres; of these lands there had been on September 30, 1881, over 720,000 acres sold at an average price of $4.50 per acre. The proceeds of these sales form one of the trust funds of the State treasury (the character of these funds is fully explained in the pages of this pamphlet treating of State finance and taxation), and upon them the State pays interest annually at the rate of seven per cent. A law passed in 1858 also provided that one-half of the cash proceeds of the sales of swamp lands should be added to the primary school fund, and that the State should pay annual interest thereon at the rate of five per cent. On September 30, 1882, the condition of the fund, including the sums still due from purchasers, was as follows:

The Primary School Fund.

	Fund.	Income of the Schools.
Proceeds of sales of "section 16" lands	$3,281,913	$226,651
Half of cash avails of swamp land sales	337,996	16,713
Total	$3,619,909	$243,364

The income is paid annually by the State to the counties for distribution to the school districts, according to their number of children of school age, and the money is used for the payment of teachers' wages. From the school lands still unsold and other sources enough will undoubtedly be realized to ultimately increase this fund to about $4,500,000 and to raise the interest thereon to over $300,000. The practical extinguishment of the State debt has also left that part of the specific taxes paid by corporations, which has heretofore gone into the sinking fund to be added to the income from the primary school fund. From this source several hundred thousand dollars will be realized yearly, the amount for the year ending September 30, 1882, having been $314,044. The sum which the counties will annually receive from the State treasury for the support of their free schools will henceforth probably exceed $600,000; in 1882 it was $639,751.

2. *The One Mill Tax.* Each township is required to raise annually for "school and library purposes" a tax of one-tenth of a cent on each dollar of its assessed valuation, and this is apportioned, after deducting the amount which may have been voted for the support of the township library, to the school districts in which it was raised, provided such districts have maintained at least the minimum school term required by law. Such part of this tax as may have been raised in unorganized territory, or in districts not maintaining the required school term, is apportioned to those districts

A MICHIGAN SCHOOL HOUSE—PUBLIC GRADED SCHOOL, MARQUETTE.

which have complied with the law, according to their number of children in the school census. The amount realized from the one mill tax in 1882 was $514,504. The peculiar care of the State for its schools is shown in the fact that of all the taxes collected in any township those for school purposes, as assessed and without reference to the amount collected, must be paid into the district school fund before any money is disbursed.

3. *Local or District School Taxes.* These are voted by the people of each district or by the school boards elected by them, under certain restrictions imposed by law with the view of preventing extravagance. The amount of these taxes in all the districts in 1882 was $2,269,504. The total taxation in Michigan for primary school purposes in 1882 was $2,784,008, or about $1.70 per capita of the population, and but a little over three-tenths of a cent on a dollar of the assessed valuation of the State.

4. *Miscellaneous.* Considerable sums are received annually from the tuition fees of non-resident pupils, from the dog tax and from various miscellaneous sources, their amount in 1882 being $447,461.

The total sum realized for school purposes from all sources in the State in that year was $3,858,144.

THE STATISTICS OF THE SCHOOL SYSTEM.

The growth of the primary school system of Michigan is shown, and the essential facts of its present condition are given in this table:

Growth and Condition of the Primary Schools of Michigan.

YEAR.	No. of Districts.	No. of School Houses.	No. of Teachers.	No. Attending School.	Average No. of Days of School.	Total Expenditures.	Value of School Property.
1835	55	.....	.....	2,377	.....	.....	.....
1840	1,506	.....	.....	47,901	.....	.....	.....
1850	3,097	.....	4,087	110,478	.....	.....	.....
1855	3,514	.....	5,074	142,307	110	.....	.....
1860	4,087	.....	7,921	193,107	124	.....	$1,633,647
1865	4,474	.....	8,792	228,629	124	$1,047,173	2,355,983
1870	5,108	5,110	11,014	278 686	138	2,789,554	6,234,797
1875	5,706	5,787	12,478	343,931	138	3,526,362	9,115,354
1880	6,352	6,400	13,949	362,556	150	3,109,915	8,977,844
1881	6,526	6,575	14,472	371,743	150	3,418,233	9,384,701

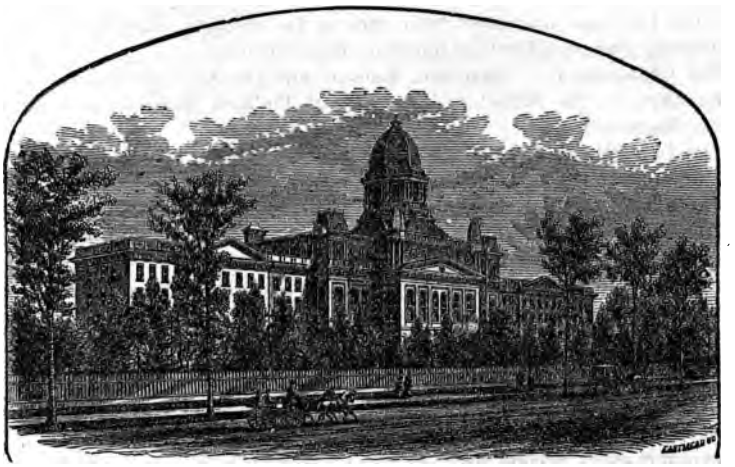
NOTE.—Where the blanks occur in this table no reports were collected in the years named.

THE SCHOOL HOUSE TO BE FOUND EVERYWHERE.

The statistics gathered by the Superintendent of Public Instruction for 1881 showed that every organized county in this State (Isle Royal alone not being heard from), however sparsely settled, was provided with school houses, and that none of them failed to maintain schools during that year. The log school house speedily takes its place by the cabins of the pioneer settlers on the edge of the wilderness; serviceable frame structures abound among the improved farms of the older counties; and there is no considerable city or village within the boundaries of Michigan which cannot point to its substantial, often beautiful, union school building as one of its most attractive features. In the larger towns such edifices are numerous; in Detroit with their sites and furniture they amounted in value in 1881 to $750,000; in Grand Rapids to $362,000; in East Saginaw to $200,000; in Battle Creek to $175,000; in Jackson to $160,000; in Bay City to $145,000; in Ann Arbor to $142,000; in Flint to $127,000; in Lansing to $106,000; in Adrian to $104,000, and in Saginaw and Marshall to $100,000.

A LARGE SUM WELL SPENT IN DEVELOPING A THOROUGHLY REPUBLICAN SCHOOL SYSTEM.

The total expenditures of this State since its admission to the Union for the support of its primary schools have exceeded $59,000,000, and, without claiming that there has been no extravagance or wastefulness on the part of the districts or that the existing system is free from imperfections, there is no exaggeration in asserting that this great sum has, on the whole, been wisely expended, and that the State has had "value received" in the universal diffusion of knowledge among its people. It may be added, moreover, as a special cause of pride, that the history of the common schools of Michigan has fully justified these utterances of the first report of its first Superintendent of Public Instruction, the Rev. John D. Pierce: "Common schools are truly republican. The great object is to furnish good instruction in all the elementary and common branches of knowledge for all classes of community, as good indeed for the poorest boy of the State as the rich man can furnish for his children with all his wealth. In the public schools all classes are blended together; the rich mingle with the poor, and both are educated in company. In these schools the poor are as likely to excel as the rich, for there is no monopoly of talents, of industry, or of acquirements. Nothing can be imagined more admirably adapted, in all its bearings, to prostrate all distinctions arising from mere circumstances of birth and fortune. By means of the public schools the poor boy of to-day may be the man of learning and influence of to-morrow; he may accumulate and die the possessor of thousands; he may reach the highest station in the republic."



THE UNIVERSITY OF MICHIGAN—MAIN BUILDING.

THE STATE UNIVERSITY.

'he University of Michigan has during a score of years maintained its position as of the first of American educational institutions, ranking as the rival of the cele- ed eastern colleges with colonial histories. It is strong in the breadth of its amental plan, the practical usefulness of its work, the value of its contributions ıe general stock of knowledge, the ample character of its equipment, the cheap- with which its advantages can be enjoyed, and its thoroughly democratic atmos- e.

ITS REMARKABLE DEVELOPMENT.

t was first opened to the public in 1841, and hence has had an active existence of ' years. Within that time its corps of three instructors has grown to eighty-five, its list of students, which in its first catalogue contained but fifty-three names, passed beyond fifteen hundred. Its single collegiate department has developed three courses, while five additional departments have been established. Its soli- building, 110 by 40 feet in dimensions, has expanded into a group of handsome spacious structures of almost half a million dollars in value. Its library now bers 42,000 volumes with many thousand pamphlets. Originally a mere local ıol, unknown beyond the limits of the State, it has won an international reputation, its rolls have borne the names of students from all parts of the United States and ı many foreign countries.

ITS LOCATION, BUILDINGS, AND DEPARTMENTS.

'he University is located in the city of Ann Arbor, thirty-eight miles west of ·oit on the Michigan Central railroad. Its numerous buildings are situated upon igh plateau in a *campus* of forty acres in extent; the single exception is the ırvatory, which occupies the summit of a natural elevation a short distance from main grounds. University Hall is a spacious structure, crowned with a lofty .e, and containing the general offices of the institution, the instruction rooms of collegiate department, and a large auditorium capable of accommodating 3,000 ple. The other principal buildings are the Law School, the Medical College (old

school), the Homeopathic Medical College, the Dental College, the Laboratory, the Library, the Hospitals connected with each of the medical colleges and the Museum. The University now contains the following departments:

1. The Department of Literature, Science, and the Arts, embracing: *a*, the Academic Faculty; *b*, the School and Faculty of Political Science; *c*, the School and Faculty of Engineering.
2. The Department of Medicine and Surgery.
3. The Department of Law.
4. The School of Pharmacy.
5. The Homeopathic Medical College.
6. The College of Dental Surgery.

Each of these departments has its faculty of instruction, who are charged with its special management.

THE BOARD OF REGENTS.

The general control of the institution is placed by the constitution in a board of eight regents who are chosen by the popular suffrage of the State in its biennial spring elections. They hold their positions for the period of eight years, the terms of two expiring every second year.

TERMS OF ADMISSION.

All students, on entering, pay a matriculation fee which to residents of the State is $10 and to non-residents $25. This fee entitles the student to all the privileges of permanent membership. The annual fees are as follows: In the literary department, $20 for residents and $25 for non-residents; in the medical, dental, and pharmaceutical schools, $25 and $35; in the law school, $30 and $50. When a degree is taken a diploma fee of $10 must be paid. Board and rooms are obtainable in private families at Ann Arbor at from $3 to $5 per week; rooms without board at from 75 cents to $2 per week. Students by forming clubs can bring their expenses within the weekly range of from $1.50 to $2.50. All students are required before admission to any course to pass such an examination as will show the possession of a suitable preparation upon their part. Those who do not care to become candidates for regular degrees may take optional courses, pursuing only such studies as they may select. For ten years women have been admitted to all branches of the University on equal terms with men.

LENGTH OF TERMS.

The regular term in the collegiate department covers four years, in the medical and dental schools three years, and in the law school two years; in the latter students of sufficiently advanced attainments acquired in other colleges or in practice are given diplomas upon an attendance of one year.

THE MUSEUMS AND LABORATORIES.

The museums contain large collections in natural history, agriculture, archæology, ethnology, the fine arts, history, anatomy, and materia medica. In the laboratories opportunities are provided for practical instruction in physics, chemistry, geology, zoölogy, botany, physiology, and dentistry.

THE HOSPITALS AND OBSERVATORY.

In the hospitals facilities are afforded to medical students for instruction by clinics. Patients are received in them and treated without charge except for medicines and board, and all persons suffering from diseases of any kind (except those of a contagious character) are granted admission. The astronomical observatory, which con-

tains a large refracting telescope and other valuable apparatus, has acquired a wide reputation in the scientific world, largely from the discoveries of the late Prof. Watson, who was its director for many years. A small observatory, used for the purposes of instruction, is situated near the main building.

ATTENDANCE IN 1883.

The total enrollment of students in all departments in March, 1883, was as follows:

Department of Literature, Science, and the Arts	524
" " Medicine and Surgery	369
" " Law	333
School of Pharmacy	87
Homeopathic Medical College	58
College of Dental Surgery	69
Total	1,440

Of the foregoing 671 were residents of Michigan; the others came not only from other States and the territories, but from foreign countries, including the British North American provinces, the Sandwich Islands, the Bermuda Islands, England, Ireland, Cuba, Nicaragua, Egypt, Roumania, and Burmah.

THE UNIVERSITY FINANCES.

The total of the congressional grants to Michigan for the support of a university was two townships and three sections, and these lands have been sold at an average price of nearly $12 per acre. From them the sum of $543,203 has been realized, and this forms one of the trust funds upon which the State pays interest at the rate of seven per cent, the income realized by the university annually from this source amounting to $38,820. The State also levies yearly a tax of one-twentieth of a mill on the dollar of the assessed valuation to aid in meeting the current expenses of this institution, and this with the receipts from fees and a few miscellaneous sources completes its regular income. The State has in addition made large appropriations for the erection of buildings and for other permanent improvements, and for the support of special departments, meeting in these respects all clearly established needs.

THE POOR MAN'S UNIVERSITY.

This institution, with its ample equipment and its numerous courses of study, is emphatically the poor man's university. All its advantages are open at merely nominal fees to any qualified applicant. With personal economy the student can support himself during the collegiate year with but a small expenditure. Not a few of those to-day in attendance there are paying their own way without assistance from parents or others; the value of an education thus obtained need not be dwelt upon. Labor is not despised at the University, and the cases have been numerous where young men in straitened circumstances have sought and obtained employment at Ann Arbor and with the wages thus earned aided materially their struggle after knowledge. Twenty years ago the late Chief Justice of Michigan did the duties of a janitor about the law school, and thus helped to secure the diploma which introduced him into a professional career of early eminence. Among the chief sources of the University's strong hold upon the affections of the people who have so liberally supported it must be reckoned this fact, that it shares so fully in the thoroughly democratic spirit of the primary schools.

THE AGRICULTURAL COLLEGE.

The State Agricultural College of Michigan was the pioneer institution of its kind in the United States. It has been the model for similar colleges established in other States, and to several of them it has furnished professors from among its graduates.

ITS HISTORY, LOCATION, AND BUILDINGS.

It exists in obedience to a provision in the State constitution, adopted in 1850, which required the Legislature, "as soon as practicable," to establish an agricultural school. It was founded by act of the Legislature in 1855, and twenty-two sections of what were then known as "salt spring lands" were appropriated by the State for the purchase of a farm and putting the school in operation. The land bought consisted of 676 acres, as a rule heavily timbered, situated three miles east of the capitol at Lansing, on the banks of the Red Cedar river. This is now a beautiful farm with 190 acres under systematic cultivation and 110 acres of woodland pasture, well stocked, and provided with spacious barns, improved implements, an apiary, extensive lawns, fruit and vegetable gardens, fine orchards, and a large greenhouse. The College buildings, a score in number and chiefly of brick, consist of three main halls, two laboratories, a library and museum, dwellings for the officers, etc. The College was first opened in 1857, and it has since constantly received aid from the State in the form of direct appropriations, as well as a supplementary grant of 7,000 acres of lands located near its farm.

THE AGRICULTURAL COLLEGE FUND.

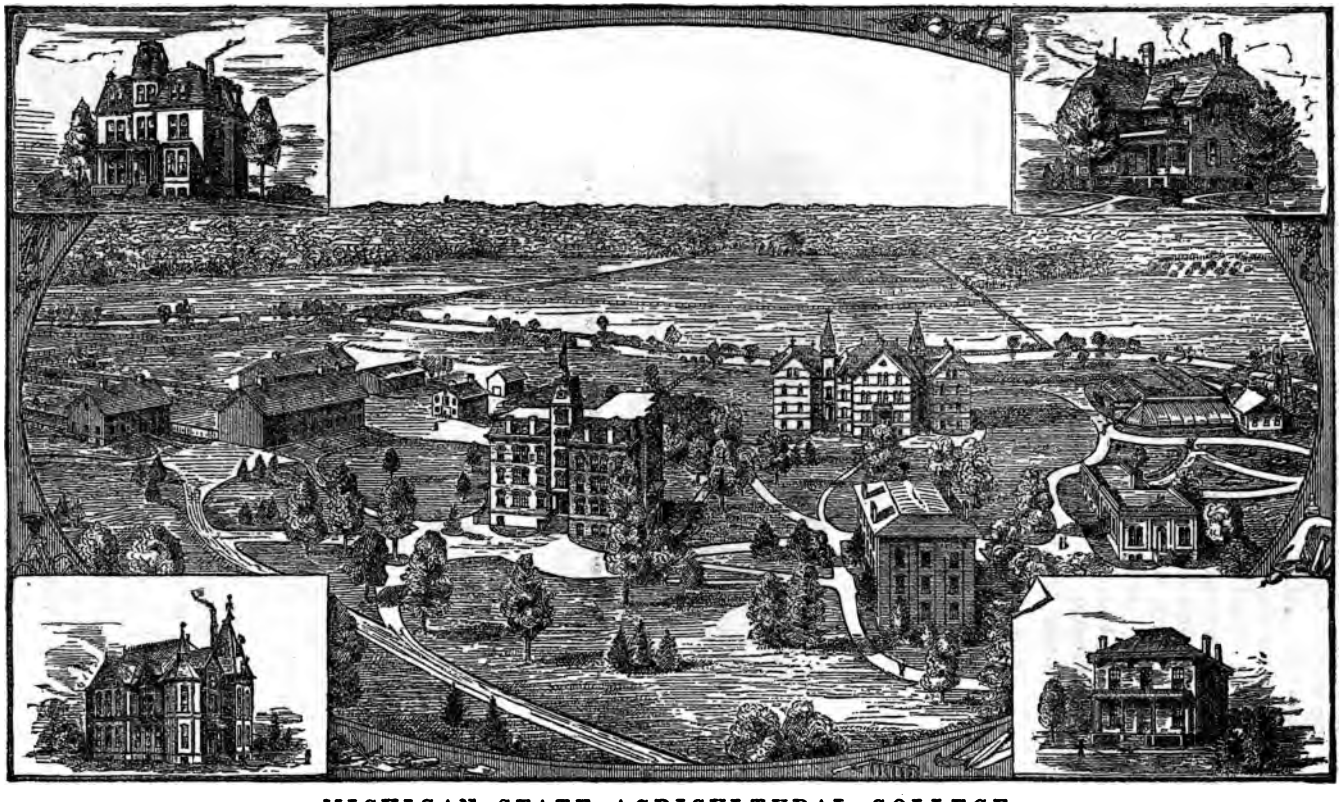
In 1862 Congress gave to the State 240,000 acres of the public lands to constitute a permanent endowment fund for this institution. On May 1st, 1883, there were 134,998 acres of these lands still unsold. The proceeds of the sales amounted on September 30, 1882, to a trust fund of $359,101; on this the State annually pays interest to the College at the rate of seven per cent. These lands were selected with a special view to their value for agricultural purposes, and for this reason command good prices; when all disposed of they will swell this endowment fund to handsome figures.

TERMS AND FEES.

The general supervision of the College is in the hands of the State Board of Agriculture whose members are mainly appointed by the Governor. It is under the direct charge of a faculty of twenty instructors. Its regular course covers four years, but students are received for a less period in selected studies. It has granted its diplomas to 272 graduates since its opening, fully one-half of whom are engaged in farming and kindred pursuits. The enrollment of students last year was about two hundred. The College year is divided into three terms, spring, summer, and autumn, giving the long vacation in winter, during which many of the students improve the time in teaching. The dormitory and boarding in commons system prevails, board being furnished at actual cost. The charge for room and board amounts to about $2.65 per week, and the total college expenses will vary from $100 to $125 per year to each student. A matriculation fee of $5 is required on entering, after which tuition is free.

MANUAL LABOR.

The students are required to work on the farm or garden three hours daily, and are paid for their labor according to their ability and fidelity, the maximum rate of compensation being eight cents per hour. This not only gives a practical knowledge of agriculture and preserves habits of industry, but is found to be very conducive to good health. If wise use is made of this opportunity, a student can nearly meet his current expenses by his earnings.



MICHIGAN STATE AGRICULTURAL COLLEGE.

AN INSTITUTION OF PRACTICAL AIMS.

The College is thoroughly practical in its aims. Its classes are taught in the fields as well as in the recitation room. No time is given to the ancient or foreign languages, but thorough training in English language and literature is provided for, and especial attention is given to the practical sciences and their application. For example, it at present teaches surveying, leveling, the laying out of grounds, mechanics as applied to implements, building, stock-breeding, agricultural chemistry, and horticulture. Experiments for the promotion of agriculture are systematically and continuously prosecuted, and their results are given to the public in the annual reports of the State Board of Agriculture and in lectures delivered by members of the faculty at farmers' institutes, which are now held annually in all parts of the State and have proved of much value to the farmers of Michigan. A product of one of these experiments was an analysis of soils from thirty-one different localities in the State, made by the Professor of Chemistry—Dr. R. C. Kedzie—specimens of which can be seen at the College laboratory and at the office of the Commissioner of Immigration. The influence of such an institution, working by these methods, is felt far beyond its walls, and the College is now recognized by the people of Michigan as a positive benefit to the agricultural classes and as a valuable feature of the educational system of the State.

THE STATE NORMAL SCHOOL.

THE STATE NORMAL SCHOOL.

This is a training and practice school designed to prepare teachers for service in the common schools.

LOCATION, BUILDINGS, AND TERMS OF ADMISSION.

It is located at Ypsilanti, thirty miles west of Detroit, on the Central railroad. Its buildings are but two in number, and are devoted wholly to the purposes of instruction. The last Legislature appropriated $25,000 for a training school, and including it the value of the Normal School property is about $150,000. Students of either sex are admitted who can pass an examination in the common English branches and will declare in writing that they propose "to devote themselves to the business of teaching." Each member of the Legislature is entitled to appoint two pupils, to whom instruction is free; all others pay a tuition fee of $10 per year. There are no dormitories connected with this institution, but board and furnished rooms can be obtained in private families at rates varying from $3 to $4 per week. Many, by "clubbing," reduce the cost of board to $2 or $2.25 per week. Others board themselves, and thereby bring their weekly expenses within $2.

The courses of study are planned with the sole aim of qualifying teachers for the efficient performance of their duties. The faculty contains thirteen members, and their work is under the general supervision of the Board of Education, whose members are elected by the popular vote of the State at large. The Normal School diploma is made in itself evidence that the person holding it is fully qualified to teach. The attendance for the school year 1881–2 was 511.

THE NORMAL SCHOOL FUND.

The current expenses of the Normal School are chiefly met by appropriations by the Legislature, and these amount to about $20,000 annually. It has a small endowment fund, the proceeds of a grant from the State of twenty-five sections of "salt spring lands." These lands have been sold and the amount of the trust fund realized is $69,126 on which the treasury pays interest at the rate of six per cent ($4,407) annually. The School is an important adjunct of the educational system of Michigan. It offers an opportunity for any one of fair attainments, no matter how limited in means, to fit himself or herself for the work of teaching at very small personal expense.

THE INSTITUTION FOR EDUCATING THE DEAF AND DUMB.

This is the oldest of what may be called the charitable educational institutions of the State. The act establishing it was passed in 1848, but it was not until 1854 that it commenced operations. Originally the blind as well as the deaf mutes were received and taught within its walls, but in 1879 provision was made for a separate school for the former.

ITS LOCATION AND BUILDINGS.

The Institution for the Deaf and Dumb is located in the thriving city of Flint, situated sixty miles northwest from Detroit, at the junction of the Chicago and Grand Trunk and the Flint and Pere Marquette railways. Its grounds have an extent of 88 acres, and its three main buildings are well adapted to the uses of such an institution. The total value of the property, including furniture, is about $437,000. The governing body is a Board of Trustees appointed by the Governor, and its immediate managers are the principal, steward, matron, and their assistants, a faculty of twelve teachers, and five foremen of industrial departments.

THE PRACTICAL AIM OF ITS TEACHINGS.

The aim of the instruction given is to fit the pupils for the battle of life both by developing their general intelligence and by teaching them some useful trade. Besides the studies of an ordinary school, the boys are taught farming, cabinet making, shoemaking, and printing, while the girls learn sewing, knitting, printing, and household work. Special instruction is of course given in the sign language and also in articulation. In the latter branch results at once surprising and gratifying have been achieved. By watching and imitating the motion of the lips in talking, many mutes have learned to speak with sufficient accuracy to make oral communication with them possible. The number of pupils in attendance on February 1, 1883, was 262.

THE GENEROUS CHARACTER OF ITS PLAN.

The State maintains this institution by liberal annual appropriations, whose total has already passed $1,000,000. No charge is made to pupils from Michigan, and the trustees are authorized to assist those in indigent circumstances to the extent of $40 annually, to be used in providing them with clothing and meeting other necessary expenses. It is made the duty of local superintendents of the poor to send to Flint

all deaf mutes of tender age who may come under their care. The State also takes steps to notify the parents and guardians of such children of their right to the benefits of this institution. Certainly no community could provide more efficaciously or generously for the care and relief of its unfortunate.

THE MICHIGAN SCHOOL FOR THE BLIND.

The foregoing paragraph is also applicable to the Michigan School for the Blind, which is still managed under the general regulations in force while it was yet a part of the Flint Institution. It is now located at Lansing, the capital of the State, and the number of pupils enrolled for the school year 1882-3, was 73. So far as possible a practically useful character is given to the courses of instruction in this institution, and the children are taught broom and basket making, the girls also learning to sew, knit, and make bead work. Its buildings are three in number: a main edifice, one containing the work rooms and dormitories of the boys, and a laundry. The wisely liberal policy of the Legislature has made it certain that this school will continue to be, what it has always been, one of the most useful of the State institutions.

THE STATE PUBLIC SCHOOL FOR DEPENDENT AND NEGLECTED CHILDREN.

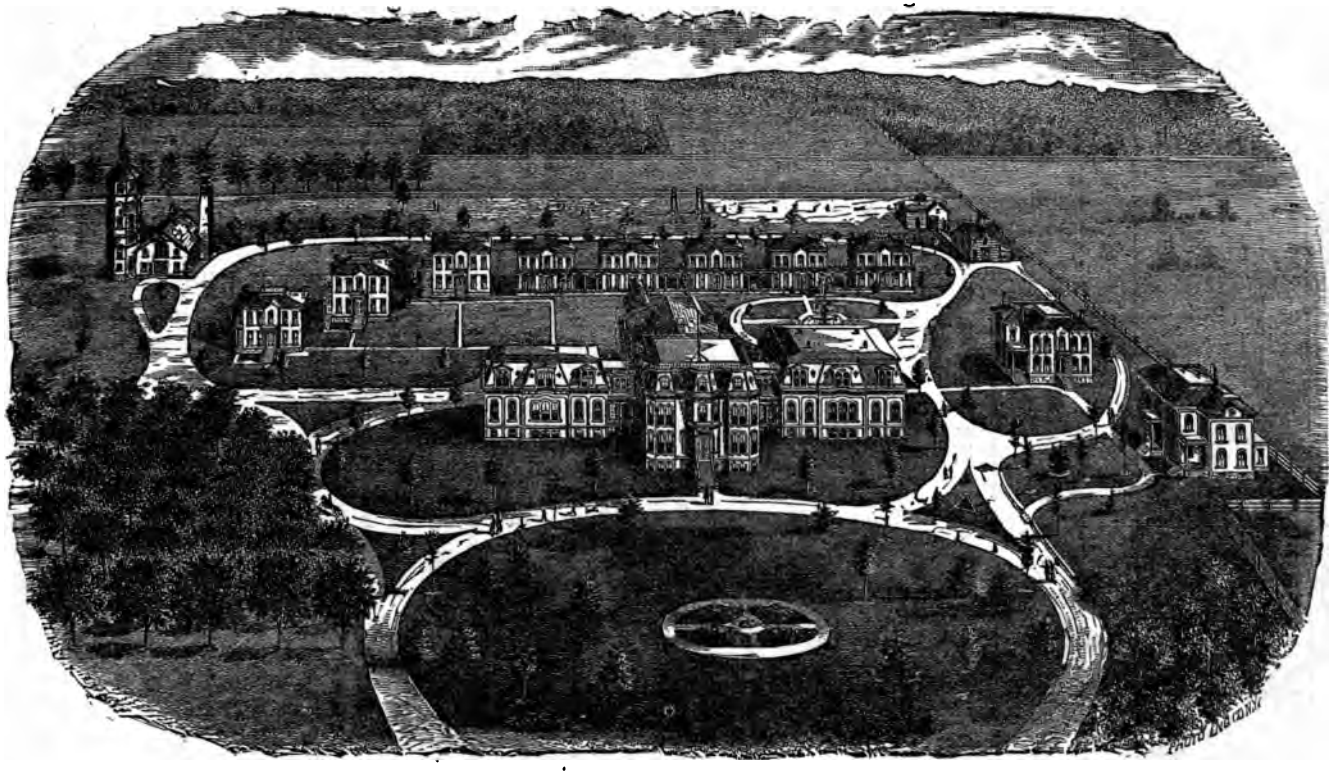
The State Public School of Michigan, one of the noblest and wisest charities of this or any country, was the pioneer institution of its kind. No government had, when it was established, ever attempted to care systematically for its dependent and neglected children. This fact and the success of the Michigan experiment have attracted attention in Europe as well as in the United States, and in an address delivered within a few years before the Institute of France the eminent French statesman, Drouyn de Lhuys, said of this institution: "Behold, gentlemen, the State of Michigan, only about forty years old, has the merit of being in advance of ancient Europe in the inauguration of a new era for indigent children."

NOT AN ASYLUM OR A REFORMATORY, BUT A SCHOOL.

The object of the School is to provide for the dependent children of the State, its pupils coming chiefly from the country poor-houses; to maintain and educate them while within its walls; and at the earliest possible moment to place them in suitable private homes. It is not an asylum nor a penal or reformatory institution. No taint of criminality attaches to it. It is a school supported by taxation, as are all the common schools, and planned to save dependent children from the evils of pauperism by giving them a temporary educational home and providing them with the means of becoming self-supporting and useful citizens.

SYSTEM OF MANAGEMENT.

The School receives dependent children of sound health and free from contagious diseases between the ages of three and twelve, and it is made the duty of officers administering the poor laws to send all such children to it. The pupils are divided into what are called "families" of about thirty each, and are cared for in separate cottages under the charge of "cottage managers," these positions being filled by cultivated women. They are comfortably clothed, kept clean, and provided with wholesome food. As a means of preserving industrious habits rather than for profit each



THE STATE PUBLIC SCHOOL OF MICHIGAN, COLDWATER.

child of sufficient years is required to work three hours a day. Some labor on the farm, some in the dining room and kitchen, while others make shoes, knit, or work in the bakery, engine room, or laundry. They attend school five hours per day, and receive regularly non-sectarian religious instruction.

LOCATION AND BUILDINGS.

This institution is located on a farm of 72 acres, one mile north of the city of Coldwater, 132 miles southwest from Detroit, and on the line of the Lake Shore & Michigan Southern railroad. Its buildings comprise a central structure, hospital, laundry, and nine cottages. All are neatly furnished, warmed with steam, and lighted with gas, and possess not only a substantial but a home-like appearance. On Sept. 30, 1882, they contained 311 children, being about the full capacity of the institution. The value of the property is estimated at about $180,000. Its immediate officers are twenty-one in number, and its governing body is a board of control appointed by the Governor. Experience has shown that the cost of maintaining children at this School and in the county poor-houses is not materially different.

SUCCESSFUL RESULT OF THIS EXPERIMENT.

Over 500 pupils of the State Public School have been placed in families in various parts of the State with satisfactory results in a large percentage of cases. This is done under contracts requiring that the child shall be treated as one of the family and shall be sent to school at least three months in each year. In case the contract is violated, or the child proves unmanageable, return to the School follows, and another home is found or special training in obedience and good behavior is given. Supervision over these indentured children is exercised through county agents, and prompt action is taken in all cases when required by the welfare of these "wards of the State." The founding and maintenance of an institution so beneficent in its aims and so successful in its results afford strong evidence of the enlightened, liberal, and humane character of the public spirit of this commonwealth.

DENOMINATIONAL AND PRIVATE COLLEGES AND SCHOOLS.

There are maintained in the State eight colleges, embracing in their curriculum of study full academic courses, which are either distinctively or quasi denominational in their character. They are as follows:

Statistics of the Denominational Colleges of Michigan in 1882.

NAME.	WHERE LOCATED.	DENOMINATION.	NAME OF PRESIDENT.	No. of Instructors.	No. of Students, 1882.	Endowment.	Value of Property
Albion College	Albion	Methodist Episcopal	L. R. Fiske	20	262	$170,000	$110,000
Adrian College	Adrian	(a)	D. S. Stephens	14	257	100,855	125,000
*Battle Creek College	Battle Creek	Seventh Day Adventist	A. McLearn	----	----	none.	50,000
Detroit College	Detroit	Catholic	J. G. Walshe	10	186	none.	75,000
Hillsdale College	Hillsdale	Free Will Baptist	D. W. C. Durgin	20	751	191,000	102,000
Hope College	Holland	Dutch Reformed	Chas. Scott	8	125	72,000	50,000
Kalamazoo College	Kalamazoo	(b)	Kendall Brooks	8	190	55,000	100,000
Olivet College	Olivet	(c)	H. Q. Butterfield	15	350	132,000	155,000

(a) Undenominational, but controlled by the Methodist Protestant church.
(b) Management Baptist, but nothing denominational in its Constitution.
(c) Undenominational, but controlled and supported mainly by Presbyterians and Congregationalists.
* Temporarily closed.

Grand Traverse College, located at Benzonia in Benzie county, is a Congregational institution, with as yet only its preparatory department established. In 1882 it had four instructors and eighty-two pupils, and its property was valued at $40,000.

In most of these colleges the dormitory and boarding system prevails, and women are admitted to all of them except Detroit College. Their charges are uniformly low.

PRIVATE AND OTHER SCHOOLS.

There are in Michigan a number of female schools under private control, of much merit. The Catholic church maintains parochial schools in all of the larger towns. The Michigan Military Academy at Orchard Lake, near Pontiac, is a private institution for boys, whose academic course includes instruction in military tactics, and which is annually inspected under State authority. The Michigan Medical College and the Detroit Medical College, both located in Detroit, and both controlled by physicians of the "regular school," give instruction in medicine. There are a number of private institutions throughout the State, specially devoted to commercial training. The number of private schools in the State reported to the Superintendent of Public Instruction in 1882 was 252, giving instruction to 20,577 pupils.

REFORMATORY AND EDUCATIONAL INSTITUTIONS.

THE REFORM SCHOOL FOR BOYS.

The history of the Reform School illustrates the progressive character of the ideas that have controlled Michigan's policy towards its institutions. It was first established as a "House of Correction for Juvenile Offenders," and was essentially penal in its character. Its inmates were sent there under sentence for various offenses and were dealt with as prisoners who were to be secured by bolts and bars and watched by guards. In 1859 its name was changed to "The Reform School," and within the last few years all the penal features have been discarded from its management. There is now no confinement under lock and key; no walls or barred windows suggest the shame of imprisonment; for the vigilance of watchmen has been substituted the quiet surveillance of the higher officers of the institution. This transformation from a prison to a home, and this substitution of reformatory for punitive aims, have been attended by successful results. Attempts at escape are exceedingly rare; the appeal to the honor of the boys is found to arouse the better instincts of their natures, and the discipline and general tone of the institution have materially improved. This change was a long step in advance of the reformatory work of similar institutions, but there is no lack of facts to sustain the assertion of its Board of Control that the success of the experiment "is being constantly attested by assurances from county agents and parents and guardians of boys who have been submitted to our care and discharged * * and entered upon new spheres of usefulness greatly improved by their residence with us, and giving promise of lives of usefulness in the future."

This institution is pleasantly located on a hill in the city of Lansing, one mile from the capitol. Its main building is large, and near it are the chapel (containing also a large reading-room with an excellent library), the necessary shops and barns, and three brick cottages known as "family houses," where the better class of inmates are cared for as a reward of merit, enjoying privileges which are not possible under the congregate system. The farm connected with the School contains 224 acres, nearly all under cultivation. The time of the boys, with liberal allowance for amusements, is divided between work and the school-room. The only regular industry is the

caning of chairs, but may find employment on the farm and in doing the tailoring, shoemaking, etc., for the School. The institution receives boys between the ages of ten and sixteen, who are sent there on conviction of some offense. They may be detained until they reach their majority, but the practice is to discharge those who give evidence of thorough reformation. The officers of the institution are fourteen in number, and they act under the general supervision of a Board of Control appointed by the Governor. The number of inmates on September 30, 1882, was 362. The annual cost of the maintenance of the institution is about $35,000, exclusive of improvements, and this is borne by the State. The value of the property is about $240,000. The evidence is abundant that the school is rendering the community constant and valuable service in reclaiming many lads from vicious habits and putting them in paths that lead to lives of usefulness and integrity.

THE STATE INDUSTRIAL HOME FOR GIRLS.

This institution is in its infancy. It is designed for the care and reformation of wayward girls, through the agencies of education and industry, combined with moral and religious instruction. A majority of its Board of Control are women, as are all of its eleven officers. In its general system of management it corresponds to the Reform School for Boys, and its plan deserves the praise bestowed upon that institution. Girls sent to it by the courts or county agents are surrounded with elevating influences, taught all kinds of domestic labor, and given a thorough English education. The ages between which commitment is permitted are seven and seventeen years, and any girl may be detained until she is twenty-one unless she sooner earns a discharge by good behavior. The institution is located one mile from the city of Adrian, the county seat of Lenawee county, on grounds of 40 acres in extent. It was opened on August 1, 1881, and on September 30, 1882, had 83 inmates. The tract of land upon which the School is located, with a farm house and barns, was the gift of the citizens of Adrian. The farm house has been fitted up for a temporary administrative building. Four brick cottages for the pupils and an engine house and chapel have been completed, furnished, and occupied. Each cottage is sufficient to accommodate thirty-two girls and the necessary officers. They are constructed on the family plan, each having its own kitchen, laundry, and work, dining, and sleeping rooms.

BENEVOLENT INSTITUTIONS.

THE MICHIGAN ASYLUM FOR THE INSANE.

The Michigan Asylum for the Insane was established by act of the Legislature in 1848, but was not opened for patients until 1859. There are two principal buildings, for male and female departments respectively, and on September 30, 1882, it had 740 patients. The grounds consist of 230 acres. This asylum is located at Kalamazoo, a city of 12,078 inhabitants, which has until recently enjoyed the distinction of being known as the largest village in the United States. It is an important railroad center.

THE EASTERN ASYLUM.

In 1873 the establishment of a second asylum was authorized, and this was subsequently located and built at Pontiac, the county seat of Oakland county. It was completed and occupied in 1878, and on Feb. 28, 1883, it had 617 patients. A new wing for females, and an addition to the male department have recently been built. These extensions will bring the capacity of the institution up to 650.

EASTERN ASYLUM FOR THE INSANE, PONTIAC.

GENERAL FEATURES OF THESE INSTITUTIONS.

The cost of maintaining indigent patients at the asylums is charged to the counties from which they are sent, for the first two years, after which it is a charge upon the State. There was disbursed from the State treasury on this account during the fiscal year of 1882 the sum of $159,098. Patients, when able to pay, are charged for care at a rate annually determined by the trustees of all the asylums at a joint meeting; that rate for 1882 was $3.92 per week. Since 1875 the direct appropriations for support of the asylums have been but small, the current expenses being chiefly met by fees paid by individuals, by counties, and by the State, as already explained.

Any detailed description of these institutions is uncalled for in this work. It is sufficient to say that both are under first-class medical and business management, and have the advantage of the most improved modern appliances adapted by the best of professional skill and expert knowledge.

PROVISION FOR A THIRD ASYLUM.

The crowded condition of the Pontiac and Kalamazoo institutions led the Legislature at the session of 1881 to pass an act authorizing the building of a third asylum, for which an appropriation of $400,000 was made, $50,000 to be raised by tax in 1881, $150,000 in 1882, and $200,000 in 1883. This institution has been located at Traverse City, among the northern counties of the State, at the head of Grand Traverse bay, and its construction will be commenced this year.

PENAL INSTITUTIONS.

THE STATE PRISON AND HOUSE OF CORRECTION.

Two penal institutions are owned by the State—the State Prison at Jackson, and the House of Correction and Reformatory at Ionia, the former having on Sept. 30, 1882, 636 inmates, and the latter 529. The earnings of the Prison have for some years been in excess of its expenses, so that no appropriations for its maintenance have been required. The House of Correction is still young, and its labor is not yet fully systematized, but in 1883 its current earnings exceeded its expenses, and it may now be regarded as also self-supporting. The industries of these institutions are managed under the contract system, the labor of their inmates being let to outside manufacturing establishments. The House of Correction is essentially reformatory in its management, and to it the less hardened class of criminals are sent. Much attention is also given to reformatory agencies in the Prison; the discipline there is not harsh, a reduction of the period of confinement can be earned by good behavior, the convicts are provided with suitable reading matter and with religious instruction, and provision has recently been made for a school of three hours' duration on each week-day evening. The boards of control of both are appointed by the Governor.

THE DETROIT HOUSE OF CORRECTION.

This is not a State institution, but is still a first-class penitentiary with a national reputation for enlightened and successful management. It was built and is controlled by the city of Detroit, but is subject to periodic inspection by the State authorities. It receives persons convicted of crimes not punishable by imprisonment at Ionia or Jackson, chiefly from the city of Detroit but also from many of the counties of Michigan. It also has contracts for the receiving of United States prisoners, and of con-

victs from the newer States and territories which have no suitable prisons. Its inmates thus range from those whose term of confinement is sixty days to those who are serving out life sentences. This institution in 1882 contributed $10,000 to the treasury of Detroit from the profits of its business, its chief industry being the manufacture of chairs. Much attention is given to the moral training of its inmates, and it may be said of the entire prison system of Michigan that it aims not merely to punish crime, but to make criminals better.

THE STATE BOARD OF CORRECTIONS AND CHARITIES.

This body, which consists of the Governor and four members appointed by him, was organized in 1871, and is charged with the general oversight of all the penal, reformatory, and benevolent institutions supported by the State. In connection with its work the Governor is also empowered to appoint an agent in each county, whose duty it is to look after all children who may be put out to places by either of the Reform Schools or by the State Public School, and also when children are arrested for vagrancy or petty crimes, if not incorrigible, to find places for them without the disgrace of a trial and sentence. The Board holds a common relation to the Institution for the Deaf and Dumb, the School for the Blind, the State Public School, the Reform Schools, the Asylums, the Prisons, and the county alms-houses, and its reports have been the source of many valuable suggestions and the moving cause in some important reforms.

THE COUNTY POOR-HOUSES.

In this connnecti on the fact should be mentioned that more than fifty of the counties of the State maintain poor-houses for the reception and care of their paupers. These institutions, as a rule, have farms connected with them and are creditably managed.

PRIVATE CHARITIES.

All the principal towns of Michigan contain valuable private charities, supported by individual benevolence. They contribute materially to the care of the destitute and the relief of the afflicted.

GENERAL SUMMARY.

The cost of the public buildings of Michigan occupied by its various institutions and of its capitol, including the purchase of sites, construction, the making of permanent improvements, and current expenses, amounted on September 30, 1882, to $11,279,281. Including in the sum spent upon "Educational Institutions" the $5,853,693 paid up to that date from the State treasury for the support of the primary schools, the aggregate expenditures of Michigan for these purposes since its admission to the Union are given in this table :

Educational Institutions, including those of a Reformatory character	$11,947,602 51
Penal Institutions	1,450,730 86
Benevolent Institutions	2,130,710 81
Capitol buildings and offices	1,603,931 45
Total	$17,132,975 63

The institutions of Michigan are without exception well adapted to their purposes, thoroughly equipped and ably officered. Those of them which possess an educational or benevolent character must be reckoned among the important attractions which Michigan offers to settlers. All of them but the Reform School for Girls, the School for the Blind, and the third Asylum, which are not yet completed, have been wholly paid for, and none of them owe one cent of debt. Those who hereafter become citizens of Michigan will enjoy their benefits without being called upon to share in the expense of their construction.

FINANCE AND TAXATION.

The State of Michigan is practically free from debt. While there are still outstanding $298,000 of its bonds bearing seven per cent interest and not due until May 1st, 1890, and $12,149.97 in bonds, etc., which are past due and now draw no interest but have not yet been presented for payment by their holders, the sinking fund of the treasury which consists of $298,000 of U. S. 4½ per cent Registered Bonds, contains the means for the payment of every dollar of this indebtedness. Moreover, not only is the State able and willing to meet and cancel all its existing obligations, but it has repeatedly sought to purchase its bonds at a large advance upon their face value; these efforts have failed only because private owners have preferred to hold rather than sell, even at a premium, securities of such undoubted merit. Michigan only awaits the consent of its creditors to extinguish its entire State debt. For the payment thereof, both principal and interest, ample provision has been made, and it has thus already ceased to be a charge upon the tax-payers.

THE STATE'S CREDIT.

The credit of Michigan is of the first order. Its securities command large premiums in the investment markets of the world, in London and Amsterdam (where a considerable amount is held by capitalists who refuse to part with them), as well as in New York and Boston. Within three years the State itself has unsuccessfully offered for its outstanding bonds bearing six or seven per cent interest, an advance of from eighteen to twenty per cent upon their par value. No American community possesses a better financial reputation.

THE TRUST FUNDS.

The Trust Funds of the State are not a debt proper. They are composed of the sums realized by the treasury from the sale of the lands granted for educational purposes. The proceeds of these sales have been expended by the State as received, and their amounts have been placed to the credit of five different funds, whose inviolability is guaranteed in the constitution, and upon which the State will, as trustee of the institutions to which the grants were made, pay interest annually at a fixed rate for all time to come. On September 30, 1882, the amounts to the credit of these funds, not including the sums still due from the purchasers of the lands, were as follows:

The Trust Funds.

NAME OF FUND.	Rate of Interest.	Amount.
Primary School Fund	7	$2,924,325 17
" " "	5	337,996 54
University Fund	7	485,601 80
Agricultural College Fund	7	224,868 15
Normal School Fund	6	60,075 45

NATURE AND USE OF THE SPECIFIC TAXES.

For the regular payment of the interest upon these funds the constitution of the State makes ample provision by declaring that all the "specific State taxes, except

those received from the mining companies of the upper peninsula [an exception of slight importance], shall be applied in paying the interest upon the primary school, university, and educational funds and the principal and interest of the State debt in the order herein recited * *." These specific taxes are levied by the State upon certain classes of corporations, and in the fiscal year of 1881 came from the following sources:

The Specific Taxes.

CHARACTER OF CORPORATION.	Amount Paid.	CHARACTER OF CORPORATION.	Amount Paid.
River Improvement Companies	$1,351 77	Telegraph and Telephone Companies	$5,204 42
Railroads and Street Railway Companies	532,525 67	Mining Companies	41,213 39
Insurance Companies	92,431 39	Freight, Sleeping and Palace Car Companies	1,058 94
Plank Road Companies	1,298 84	Musical Societies	4 50
Express Companies	1,852 17		
Total			$676,941 09

This sum was over $400,000 in excess of the amount required in that year to pay the interest on the Trust Funds and to provide for the principal and interest of the bonded debt. With the constant natural increase in the number of corporations paying specific taxes and the present extinguishment of the State debt, the proportion of this excess is reasonably certain to increase rather than diminish, notwithstanding the fact that the steady sale of lands granted for educational purposes will continue to add to the principal of the Trust Funds for many years to come.

THE STATE CANNOT CONTRACT DEBT EXCEPT FOR WAR PURPOSES.

Again, Michigan is not only free from debt by virtue of the facts (1) that its sinking fund, already realized, is sufficient to pay every outstanding bond, and (2) that it has made ample provision for the payment with the specific taxes of the interest on all obligations not matured and of the annuities for which it is liable in the form of interest on the Trust Funds, *but it cannot involve itself in debt in the future except in case of war.* Its existing indebtedness was incurred in internal improvements in its early days and in the extraordinary expenditures made necessary by the civil war of 1861–5. By its present constitution it is absolutely prohibited from again engaging in schemes of internal improvement and from running into debt in any manner except to obtain small temporary loans to meet deficits in revenue or to provide the means for "repelling invasion, repelling insurrection, or defending the State in time of war."

CONSTITUTIONAL BARRIERS AGAINST A STATE DEBT.

The sections of that instrument bearing upon that subject are as follows (article 14):

SECTION 3. The State may contract debts to meet deficits in revenue. Such debts shall not in the aggregate, at any one time, exceed $50,000. The moneys so raised shall be applied to the purposes for which they were obtained, or to the payment of the debts so contracted.

SECTION 4. The State may contract debts to repel invasion, suppress insurrection, or defend the State in time of war. The money arising from the contracting of such debts shall be applied to the purposes for which it was raised; or to repay such debts.

SECTION 6. The credit of the State shall not be granted to or in aid of any person, association, or corporation.

SECTION 7. No scrip, certificate, or other evidence of State indebtedness shall be issued except for the redemption of stock previously issued, or for such debts as are expressly authorized in this constitution.

SECTION 8. The State shall not subscribe to or be interested in the stock of any company, association, or corporation.

SECTION 9. The State shall not be a party to or interested in any work of internal improvement, nor engaged in carrying on any such work, except in the expenditure of grants to the State of lands or other property.

Manifestly, the contingencies which can make it possible for this to again become a debt-owing State are very remote. The only other States which, like Michigan, are practically free from debt are Colorado, Illinois, Vermont, and West Virginia.

THE LOW RATE OF STATE TAXATION.

Michigan is a State of low taxes. The State itself raises money by the specific taxes upon corporations and by direct taxes upon the lands, houses, and personal accumulations of its citizens. The specific taxes, which, as shown, now exceed $750,000 annually, are paid directly into the treasury by the corporations taxed, and are disposed of as follows: One-half of the small amount contributed by the mining companies of the upper peninsula is used for general State expenses, while the other half is returned to the Lake Superior counties and applied by them to local purposes. The bulk of the specific taxes is, as has been stated, first used to pay the interest on the Trust Funds and to provide for the State debt, and the remainder is then added to the annual income of the primary schools. The direct taxes which are paid by the people at large are used to meet the current expenses of the State Government, including the maintenance of its Institutions. The tax levy of 1882 was composed of the following items:

The Tax Levy of 1882.

INSTITUTIONS, ETC.	Amount.	INSTITUTIONS, ETC.	Amount.
University—Regular income..	$40,500 00	Buildings, etc.....	$75,000 00
Special appropriations.....	86,000 00	Reform School for Girls.....	11,000 00
Normal School—Cur'nt exp'ses	19,500 00	House of Correction.....	10,000 00
Ag'l College—General exp'ses	16,194 50	New Asylum.....	150,000 00
State Public School.....	41,650 00	Fish Commissioners.....	7,500 00
Deaf and Dumb Institution...	41,600 00	State Board of Health.....	2,000 00
School for the Blind.....	18,500 00	Military Purposes.....	57,271 00
Buildings.....	11,300 00	Relief of sufferers by fire, 1881	125,000 00
Reform School—Cur'nt exp'ses	35,500 00	General State expenses.....	272,575 00
Total of the Tax Levy for 1882.....			$1,021,080 00

This sum was apportioned equally upon the $810,000,000 of real and personal property which form the present assessed valuation of the taxable wealth of this State. The current rate of taxation in Michigan for State purposes is thus but about fourteen cents on each $100. For thirteen years this average has ranged from eight to eighteen cents, and in thirty years it has not exceeded thirty-seven cents, this upper limit having been reached during the civil war, when Michigan raised and partially equipped an army of 90,000 men.

The State tax of 1882 amounted to less than 63 cents per inhabitant, and that average has never been exceeded in the history of Michigan.

STATISTICS OF LOCAL INDEBTEDNESS.

The following statistics of the local indebtedness of Michigan have been kindly furnished, in advance of official publication, by Mr. R. P. Porter, the special agent of the U. S. Census Bureau on wealth, debt, and taxation. Each item is for the date of September, 1880:

Bonded debt of counties	$870,302
Floating " "	26,398
Bonded debt of townships	349,848
Floating " "	279,357
Bonded debt of cities and villages	*6,383,401
Floating " " " "	52,899
Bonded debt of school districts	1,293,592
Floating " " "	96,081
Total	$9,351,878

A STRIKING COMPARISON.

How light the burden of outstanding local debt resting upon the tax-payers of Michigan really is appears in this table in which its rates per inhabitant and per dollar of the assessed valuation are given and contrasted with those of the only three States whose returns had become public when this edition was prepared:

Comparison of the Population, Local Debt, and Valuation of Four States.

STATE.	Population.	Total of Local Indebtedness.	Amount of Local Debt per Citizen.	Total Valuation of Taxable Property.	Amount of Local Debt per Dollar.
					Cents.
Michigan	1,636,937	$9,351,878	$5 71	$810,000,000	1.1
New York	5,082,871	*248,766,119	48 93	2,769,139,133	8.9
Ohio	3,198,062	44,654,169	13 96	1,545,746,600	2.8
New Jersey	1,131,116	53,828,248	47 59	518,617,518	10.3

*This total does not include the debt of the school districts, which would materially increase it.

Comparisons with nearly all of the States, especially the older ones, would show similar results. Michigan is more conservative in the matter of "running into debt" than the great majority of American communities, and among its people there is a growing tendency to adhere in all ordinary municipal transactions to the wholesome rule of "pay as you go."

NO BURDENSOME INDEBTEDNESS.

The existing debt of the counties, cities, villages, towns, and school districts of this State represents almost without exception permanent improvements and is not the product of extravagant business management. The people have its equivalent in substantial court-houses, schools, alms-houses, jails, water-works, fire departments, and systems of sewerage. Public works of this character frequently involve large cost, which is distributed by the issue of bonds through a series of years in order that the tax-payer may not be over-burdened. This policy explains the existence of the local indebtedness of this State.

Settlers or intending settlers in the farming districts or in the newer counties of Michigan will not be called upon to assume any heavy burdens from this cause. More than two-thirds of the local debt belongs directly to the cities and villages.

* Against this total there were sinking funds amounting to $548,734.

Their share of the county and school district indebtedness is also large. Deductions on these accounts bring the debt resting directly upon the agricultural communities down to trifling proportions. It is of course not possible to make an accurate calculation on this basis, but the following statement which is an approach to such a calculation, will show its force: The debt of the cities and villages must be met by the inhabitants exclusively; the debts of the counties, towns, and school districts rest more equally, although not with absolute equality, upon the whole body of the people; they amount to but $2,915,578, or $1.78 per inhabitant.

The foregoing pages show *that the people of Michigan have fully provided for their State debt, and that the total of their local public indebtedness of all kinds amounts to but one and one-tenth cents on the dollar of the valuation of their taxable wealth.*

THE STATISTICS OF TAXATION OTHER THAN STATE.

The latest statistics obtainable concerning the local taxes of Michigan are for those assessed in 1880 and collected in that year and in 1881. They are given this table, as furnished by the Auditor General of the State:

County tax	$1,828,072
City, village, and township taxes	1,436,668
School district tax	1,255,933
Total	$4,520,673

This table does not include the paving, sidewalk, and private sewer taxes of the cities and villages, or the ditch taxes of counties and towns, or the taxes levied in connection with the opening of streets and roads, for the reason that all such taxes are met by special assessments upon the adjoining property which is benefited by these improvements; they do not appear in the general tax rolls, and do not form part of the public burden.

THE RATE OF LOCAL TAXATION LESS THAN ONE CENT PER DOLLAR.

These figures show that the current rate of local taxation for all purposes in Michigan is less than nine-tenths of a cent on each dollar of the assessed value of the taxable property of the State. In the rural townships, whose tax for their own purposes is small, and which bear only their share of the county and school taxation and escape the relatively large city and village tax entirely, the rate is much smaller. It cannot be accurately determined, but must average less than half a cent on the dollar.

WHEN TAXES ARE PAYABLE.

The cities and incorporated villages of the State collect their purely local taxes at different times, but all other taxes, whether State, county, township, or school district, uniformly fall due in the month of December of each year, and are all payable at one time and place. This provision of law especially consults the convenience of the farming community, who at that time have usually received the money for the crops of the preceding season, are not busy, and can thus meet their obligations as citizens with the minimum of personal trouble.

EDUCATION THE LEADING SOURCE OF TAXATION IN MICHIGAN.

The aggregate of the taxes assessed in Michigan in 1880—obtained by adding the State tax ($804,831) to the total of local taxation as already given—was $5,325,504, or about five-eighths of one per cent on the dollar of the assessed valuation of 1881.

Of this amount there was raised for the support of schools and educational institutions the following sums:

School district taxes	$2,269,504
One-mill school tax collected in the townships	514,504
State appropriations for educational purposes	221,536
Total	$3,005,544

It thus appears that Michigan devotes one-third of all its taxes, State and local, to educational purposes. The State tax levy of 1879 contained more than ten times as much for education as for prisons. The proportion of the township taxes which is disbursed for the maintenance of schools or the state educational institutions is above the general average of one-third, and must as a rule amount to nearly one-half of the entire sum collected. Of all the public burdens those which when wisely applied contribute to the diffusion of popular intelligence are the most easily borne by thinking tax-payers.

LIBERAL CHARACTER OF THE EXEMPTION LAWS.

All direct State taxes and all local taxes are collected under uniform laws from the real and personal property of the people of the State. Taxes are not levied upon United States or State property, upon the property of municipal corporations used for corporate purposes, upon burial places, upon church property set apart for religious uses, or upon the personalty of charitable, benevolent, library, and scientific associations of the real estate actually occupied by them.

The State also exempts from any kind of taxation these articles:

Library or school books of the value of $150; the personal wearing apparel of every individual, and all family pictures.

Furniture and utensils in use in any dwelling house, of the value of $200; musical instruments not exceeding in value $150, and other personal property owned and used by any householder in connection with his house or business, of the value of $200.

The personal and real property of persons who, by reason of poverty, may in the opinion of the [assessing officer] be unable to contribute toward the public charges.

Not only is Michigan a State of low taxes, but *its taxing policy is alike equitable in character, liberal in its treatment of institutions which aim at the improvement of the condition of the people, and benevolent in its dealings with the unfortunate.*

A HEALTHY BUSINESS CONDITION.

The present condition of what may be called the business affairs of Michigan is as nearly perfect as wise laws and honest administration can make it. At the close of the fiscal years 1880, 1881, and 1882, the books of the State treasury show a balance to the credit of every fund, a result due to the prompt payment of light taxes by a prosperous people. The numerous State institutions are thriving. The State government is upright and economical. High salaries and extravagant expenditures do not exist. and the business of Michigan is, as a rule, managed with the skill and care with which the prudent individual guards his private interests. The fact should be again emphasized that these results—an extinguished debt, an unsurpassed credit, and a full treasury—have been secured without abandoning the policy of liberal dealing with State institutions, and without levying heavy taxes upon the people.

TRAVEL AND TRANSPORTATION.

Michigan, producing staples which must always be subject to an increasing demand, is peculiarly fortunate both in the possession of rare natural facilities for communication with the great commercial markets and in the present and prospective development of its railway system. It is surrounded upon three sides by a chain of the largest lakes in the world, affording magnificent water highways to the seaboard. All the important trunk lines of railroad in the northern States traverse its territory, or reach it with their tributaries. Railway construction is in rapid progress in both peninsulas, establishing new and valuable connections, opening broad tracts of land to settlement, and greatly enlarging the area of easy travel and of quick and cheap transportation. The State thus enjoys in an unusual degree the double advantage of competition between rival lines of railroad and between water and rail freights, with the certainty that no monopoly can ever control the carrying trade between its producers and the ocean ports.

THE RAILWAY SYSTEM OF THE LOWER PENINSULA.

The Atlantic seaboard cities are, and are likely to be, the great markets for the produce and supplies of this part of the United States and hence the land thoroughfares of traffic of this region mainly run east and west. There are six important lines of railroad which traverse the lower peninsula of Michigan practically in that direction. These are the Lake Shore and Michigan Southern, the Michigan Central, the Detroit, Lansing and Northern, the Detroit, Grand Haven and Milwaukee, the Flint and Pere Marquette, and the Chicago and Grand Trunk. Southeastern Michigan is also crossed by the Wabash, St. Louis and Pacific railway, connecting it with the main lines of the Wabash and the Baltimore and Ohio corporations.

The lower peninsula has in addition a well-developed north and south railway system, which, besides carrying to market the product of farms, gardens, and orchards, derives a large share of its revenue from the transportation of lumber and the business growing out of lumber operations. This comprises these roads: The Flint and Pere Marquette, which is also an important factor in the east and west system; the Jackson, Lansing and Saginaw, which, as the Mackinac branch of the Michigan Central, may be called a feeder of the same system; the Grand Rapids and Indiana, which is purely a north and south road, but has intimate relations with the wealthy Pennsylvania company; the Chicago and West Michigan, which will soon have a southern connection with the Baltimore and Ohio; and the short lines of the Fort Wayne and Jackson and the Toledo, Ann Arbor and Grand Trunk.

Of the great east and west trunk lines north of the Ohio river—the Grand Trunk, the Michigan Central, and the Lake Shore connecting with the New York Central system, the Wabash, the Pennsylvania, and the Baltimore and Ohio—the first four traverse Michigan territory and the others reach it by valuable connections with friendly roads.

Nearly all of the Michigan lines named have branches or feeders spreading over the lower peninsula and interlacing with each other, so that not only is every populous rural community supplied with railroad facilities, but nearly all the cities and villages of importance have two or more railroad outlets and the benefits of the resulting competition.

THE LAKE SHORE AND MICHIGAN SOUTHERN RAILROAD.

One of the oldest and richest of these railroad corporations is the Lake Shore and Michigan Southern extending from Chicago via Toledo to Buffalo. Its main line enters the State at the western border of St. Joseph county, and thence traverses that and the counties of Branch, Hillsdale, and Lenawee, passing into Ohio through a corner of Monroe. Upon this line, which crosses the three counties first named centrally, are the thriving towns of Coldwater, Jonesville, Hillsdale, Hudson, and Adrian. The Lake Shore has numerous branches in Michigan, all operated as feeders to the trunk line from Toledo to Buffalo. These include the roads extending from Toledo through Monroe to Detroit; from Adrian to Monroe; from Fort Wayne, Ind., to Jackson, entering this State at the southeastern corner of Branch county, and thence crossing Hillsdale county in a northerly direction, passing through Jonesville to Jackson; from the main line near Adrian through Tecumseh and Manchester to Jackson; from Banker's on the Fort Wayne and Jackson road, through Hillsdale and Manchester to Ypsilanti; from Jonesville through Homer, Albion, and Eaton Rapids to Lansing; from White Pigeon through Three Rivers, Kalamazoo, and Allegan to Grand Rapids; and from Trenton, on the Detroit river, through Monroe and Lenawee counties to Fayette, about four miles within the borders of Ohio. The total length of the Lake Shore and Michigan Southern and these several branches, within this State, is 577 miles.

THE MICHIGAN CENTRAL RAILROAD.

First of the railroads of the State in age, and perhaps in importance so far as Michigan is concerned, is the Michigan Central. Its main line extends from Chicago to Detroit, crossing the counties of Berrien, Cass, Van Buren, Kalamazoo, Calhoun, Jackson, Washtenaw, and Wayne, and counting among its stations the important towns of Niles, Kalamazoo, Battle Creek, Marshall, Albion, Jackson, Ann Arbor, and Ypsilanti. Its Air Line division extends from Niles to Jackson, passing through the counties of Cass, St. Joseph, Branch, Calhoun, and Jackson, and touching Cassopolis, Three Rivers, Centerville, and Homer.

There are several very important roads operated by this corporation. Chief of these is the Jackson, Lansing and Saginaw, which now forms the Saginaw and the Mackinac divisions of the Michigan Central. It extends from Jackson to the Straits of Mackinac, a distance of 295 miles, and passes through Lansing, the capital of the State, Owosso, Saginaw, West Bay City, Gaylord, and Cheboygan, to Mackinac City, crossing the counties of Jackson, Ingham, Shiawassee, Saginaw, Bay, Ogemaw, Roscommon, Crawford, Otsego, and Cheboygan. A glance at the map accompanying this pamphlet will show this line, unquestionably destined to become an important artery of trade and travel, passing midway through the central part of the lower peninsula north of Saginaw bay and opening to settlement a country hitherto largely undeveloped. It connects at the Straits of Mackinac, by a ferriage of five miles, with the Detroit, Mackinac and Marquette railroad of the upper peninsula, and also at Bay City with the Detroit, Saginaw and Bay City, another feeder of the Michigan Central, with which it forms a direct line between Detroit, the commercial metropolis of the State, and the new and rapidly growing portions of both peninsulas.

The Detroit, Saginaw and Bay City, which is operated as the Bay City division of the Michigan Central, extends from Bay city to Detroit, passing through Vassar, Lapeer, the county seat of the county of that name, Rochester, and Utica. It has branches extending from Denmark Junction through East Saginaw to Saginaw, from Vassar to Caro, the county seat of Tuscola, and from Lapeer northward nine miles to Five Lakes.

The Toledo, Canada Southern and Detroit division extends in Michigan from Toledo to Detroit, passing through Monroe and Wyandotte. Its main line proceeds eastward

from Trenton Junction, crossing the Detroit river at Grosse Isle and thence passing through Canada to Buffalo, forming one of the chief railway outlets of the State.

The Grand River Valley division of the Michigan Central extends from Grand Rapids to Jackson, passing through Hastings and Charlotte, the county seats of Barry and Eaton counties. The Kalamazoo and South Haven division runs through Kalamazoo and Van Buren counties and connects the two places named, the latter an important point on Lake Michigan. A short branch also connects Niles with South Bend, Indiana, and another branch connects Ridgeway on the G. T. R. R. with St. Clair, and is known as the Michigan, Midland and Canada.

The total length of the Michigan Central and its branches in Michigan is 967 miles, exclusive of double track, which extends for many miles along the main line.

THE GRAND TRUNK LINES.

The Chicago and Grand Trunk railroad extends from Chicago to a connection with the main line of the Grand Trunk of Canada at Port Huron. It enters the State at the southwestern border of Cass county, which it crosses centrally and diagonally, then traverses consecutively the counties of Kalamazoo, Calhoun, Eaton, Ingham, Shiawassee, Genesee, Lapeer, and St. Clair. Its chief stations are Cassopolis, Battle Creek, Bellevue, Charlotte, Lansing, Flint, and Lapeer.

Belonging to the same system is a line from Port Huron through Mt. Clemens, the county seat of Macomb county, to Detroit, with a branch from Ridgeway through Romeo and Rochester to Pontiac, whence it will soon be extended to Jackson. The Detroit, Grand Haven and Milwaukee railroad is also a part of the same system. This line extends from Grand Haven, one of the principal ports on Lake Michigan and the county seat of Ottawa county, through Grand Rapids, Ionia, St. Johns, Corunna, Owosso, Fenton, Holly, and Pontiac to Detroit. It crosses the counties of Ottawa, Kent, Ionia, Clinton, Shiawassee, and Oakland quite centrally, and also passes through the southern portion of Genesee.

The total length of the roads in Michigan controlled by Grand Trunk interests is 508 miles, and they form part of a great thoroughfare to the Atlantic seaports, to Montreal, as well as to those of the United States.

THE WABASH, ST. LOUIS AND PACIFIC RAILROAD.

This is part of the great Wabash system spreading through several western States and touching the principal cities of the west and southwest. It enters Michigan from Ohio in the southeastern corner of Hillsdale county and crosses Lenawee diagonally, passing through Adrian. It also crosses corners of Monroe and Washtenaw counties, then traverses Wayne to Detroit. The total present length of this road in this State is 78 miles. It not only connects the chief city of Michigan with the Wabash system, but at Auburn, Ind., taps the important Baltimore and Ohio road.

THE DETROIT, LANSING AND NORTHERN RAILROAD.

This line extends from Howard City, on the Grand Rapids and Indiana road, through Greenville, Ionia, Portland, Lansing, Howell, Brighton, and Plymouth to Detroit. In its course it traverses the counties of Montcalm, Ionia, Ingham, Livingston, and Wayne, and passes through parts of Clinton, Eaton, Oakland, and Washtenaw. It has a branch extending from Ionia through Stanton, the county seat of Montcalm, and Blanchard in Isabella county, to Big Rapids, the county seat of Mecosta; this Stanton branch is connected with Belding by a short line. It also operates the Saginaw Valley and St. Louis railroad, running from Alma through St. Louis in Gratiot county to Saginaw City. With this latter road connections are made by an independent line, which is known as the Chicago, Saginaw and Canada, and runs from

St. Louis through Alma and Edmore (on the Stanton branch of the main line) to Lakeview. The total length of the lines operated by the Detroit, Lansing and Northern is 254 miles, and that of the Chicago, Saginaw and Canada 38 miles.

THE FLINT AND PERE MARQUETTE RAILROAD.

The main line of the Flint and Pere Marquette commences at Ludington on the western shore, and passes through Mason, Lake, Osceola, Clare, Midland, Saginaw, Genesee, Oakland, Wayne, and Monroe counties to the city of Monroe. Among its stations are Baldwin, Reed City, Hersey, Evart, Clare, Midland, Saginaw, East Saginaw, Flint, Holly, Milford, Plymouth, and Wayne. An examination of the map will show that this is one of the important roads of Michigan, serving a large belt of new and rapidly developing country in the northern midland district, and also traversing some of the oldest and richest counties. The Flint and Pere Marquette has branches extending from Manistee to Manistee Junction on the main line, from East Saginaw to Bay City, from a point near East Saginaw to South Saginaw, and from Flint through Otter Lake to Fostoria. This corporation also controls and operates the Saginaw and Mt. Pleasant railroad (narrow gauge), running from Coleman on its main line in Midland county to Mt. Pleasant, the county seat of Isabella, and the Saginaw and Clare railroad connecting it with Harrison, the county seat of Clare. Its total length, including that of its branches of all kinds, is 349 miles.

THE GRAND RAPIDS AND INDIANA LINE.

This railroad extends from Mackinac City in Cheboygan county, almost due southward through the counties of Antrim, Kalkaska, Grand Traverse, Wexford, Osceola, Mecosta, Montcalm, Kent, Allegan, Kalamazoo, and St. Joseph to Fort Wayne, Indiana, where it connects with the great Pennsylvania system leading to the Atlantic coast, affording the main outlet to all southeastern consuming points. Its important stations are Petoskey, Cadillac, Reed City, Big Rapids, Grand Rapids, Plainwell, Kalamazoo, and Sturgis. It has these branches: 1, from Monteith to Allegan; 2, from Milton Junction, completed twelve miles to Luther and projected to Manistee; 3, from a point above Cadillac five miles towards Lake City; 4, from Walton to Traverse City; 5, from Petoskey to Harbor Springs. This road is one of the most important of the Western Michigan lines, and has been an important factor in the development of the northwestern portion of the lower peninsula. The total length in Michigan of the lines owned or operated by it is 354 miles.

THE CHICAGO AND WEST MICHIGAN LINE.

The Chicago and West Michigan railroad traverses the important fruit belt of the western shore. Commencing at Pentwater on Lake Michigan it passes through the counties of Oceana, Muskegon, Ottawa, Allegan, Van Buren, and Berrien to New Buffalo on the Michigan Central. It also has branches from Holland to Grand Rapids, from Muskegon to Big Rapids, from Mears to Hart, from Holland to Allegan, from White Cloud on its Big Rapids branch, through Newaygo to Grand Rapids, from White Cloud north towards the line of the Flint and Pere Marquette, from Woodville southeast into the pineries, along the shores of Muskegon Lake, and a short loop line south of Muskegon. Its extension north to the Flint and Pere Marquette line is under progress. It extension south is also projected by a line from New Buffalo through LaPorte, Ind., to points of junction with the Pennsylvania and the Baltimore and Ohio systems. The total length of this road and its branches is 379 miles.

THE TOLEDO, ANN ARBOR AND GRAND TRUNK LINE.

This road was projected from Toledo to Pontiac, and is in operation at the present time to South Lyon, Oakland county. It crosses in a nearly northerly direction the

counties of Monroe and Washtenaw, passing through Ann Arbor. Its total length in Michigan is 56 miles. Extensions to Frankfort and Alpena are contemplated.

THE LOGGING RAILROADS.

The lumber districts of the State contain many short lines of railroad, constructed by lumbermen to carry logs from the pineries to the banks of rivers or lakes, or to some point of shipment. As a rule, these are private lines, and used only for the business of their owners. In a few instances, however, they have been incorporated under the general laws of the State, and thus opened to the public. These latter lines, which are of full gauge, are three in number, as follows: The Lake George and Muskegon River railroad, in Clare county, connects the forests about Lake George with the Muskegon river; the Saginaw Bay and Northwestern railroad extends from Pinconning, near Saginaw bay in Bay county, westward nearly to the line of Gladwin, with north and south branches near its western terminus; and the Lake County connects with the Flint and Pere Marquette railroad at New Branch Station. The total length of these lines is 50 miles.

THE NARROW GAUGE LINES OF THE LOWER PENINSULA.

The roads included in the preceding description are of the standard gauge usually employed in the railroad construction of the United States—4 feet 8½ inches—except that the track of the Grand Rapids and Indiana (not including its Allegan branch) is half an inch wider. There are also several narrow gauge lines which have been built and are operated at a much less cost than that of the standard roads, and which supply thriving towns and districts with railroad facilities. One of these is of considerable length and importance. This is the Port Huron and Northwestern, which is completed from Port Huron to Sand Beach, with a branch to East Saginaw, and a branch from Cedar Dale to Port Austin. The distance from Port Huron to Sand Beach is 71 miles, and the road runs almost due north entirely across the county of Sanilac, and about half way through Huron. The East Saginaw line takes a northwesterly course, crossing the counties of Sanilac and Tuscola, and touching northern Lapeer. The Port Austin branch runs in a northwesterly direction from Cedar Dale to Port Austin on the lake shore. It touches at Bad Axe, the county seat of Huron county. A branch from Port Huron to Almont, in Lapeer county, has been recently completed. The total length of this road and its branches is 219 miles. This is proving a very serviceable road in developing the Huron peninsula.

The Saginaw, Tuscola and Huron railroad extends from East Saginaw via Reese, Gilford, and Unionville to Sebewaing, a distance of 37 miles. It will be extended beyond Sebewaing into the Huron peninsula, in all probability to Bad Axe.

The Paw Paw and the Toledo and South Haven roads make a continuous narrow gauge line of 20 miles, extending from Hartford, near the centre of Van Buren county, to Lawton, a station on the Michigan Central, through Paw Paw, the county seat of Van Buren. The Pontiac, Caseville and Port Austin railroad is in process of construction, and as this edition goes to press, the practical completion of the road is announced.

The Saginaw and Mt. Pleasant railroad is a narrow gauge line operated, as has been said, by the Flint and Pere Marquette as one of its branches. The Hobart and Manistee River, and the Tawas and Bay County lines are logging railroads of less than standard gauges, located respectively in the counties of Lake, Iosco, and Osceola.

The St. Joseph Valley railroad is a short line which connects Berrien Springs, the county seat of Berrien county, with Buchanan, on the Michigan Central. Its extension to St. Joseph on the shore of Lake Michigan is expected during the summer of 1883. Its present length is 10 miles.

All of these lines possess a gauge of three feet except the Hobart and Manistee River, which is two inches wider.

PROJECTED ROADS IN THE LOWER PENINSULA.

Besides the proposed extensions of the lines now in operation already noted, there are several projected roads, which are considered reasonably sure to be built in the immediate future. Chief of these is the Bay City and Alpena, which is to run from some point on the Flint and Pere Marquette, or on the Mackinac division of the Michigan Central, through Bay, Iosco, Alcona, and Alpena counties, along the Lake Huron shore, to Alpena, touching the important towns of Alabaster, Tawas City, East Tawas, Au Sable, Oscoda, and Harrisville. This road is to be of standard gauge, as will also be a projected line connecting Ovid, on the Detroit, Grand Haven and Milwaukee, with Walton, on the Grand Rapids and Indiana, and thus forming a new route between Detroit and Traverse City. Prominent capitalists and the localities interested are also considering projects for the construction of narrow gauge roads from Frankfort to Manistee, and from Traverse City into Leelanaw county.

THE PENINSULA WELL SUPPLIED WITH RAILROADS.

Of the sixty-seven counties in the lower peninsula fifty-five have county seats possessing railroad communications. Of the 12 county seats which have no railroad as yet, six are lake ports and have water communication, leaving only the county seats of six—Sanilac, Gratiot, Gladwin, Missaukee, Montmorency, and Oscoda—which have neither rail nor water outlets, and not one of these is twenty miles from a railroad station. The counties in the lower peninsula which no railroad touches are but eight in number, namely, Alcona, Alpena, Gladwin, Leelanaw, Missaukee, Montmorency, Oscoda, and Presque Isle. In his report for 1874 the Railroad Commissioner of Michigan made this striking statement, and the comparison is equally valid now: "In the four southern tiers of counties of this State, embracing 17,894 square miles of territory, and a population, according to the census of 1874, of 997,701, we have 2,333 miles of railroad. This is equal to one mile of road to every 427 inhabitants, while in Massachusetts there is only one mile of road to every 879 inhabitants; and in Connecticut there is but one mile of road to every 620 inhabitants; so that we have within the limits of the territory mentioned, in proportion to the population, more than two miles of road to one in Massachusetts, and one and two-fifths miles of road to one for Connecticut.

THE RAILWAY SYSTEM OF THE UPPER PENINSULA.

The railroads of the upper peninsula are far less numerous in proportion to the extent of territory than those of the lower, but two first-class railroad outlets now connect that northern region with the rest of the world.

THE CHICAGO AND NORTHWESTERN LINE.

The oldest of these is the Chicago and Northwestern, which extends from Negaunee to Chicago, and connects the Lake Superior district, first with the great railway system west of Lake Michigan, and then with that of the continent. From Negaunee, in Marquette county, the course of the Northwestern is southerly to Escanaba on Little Bay de Noquet, thence westerly and southerly through Menominee county to the mouth of the river of that name; there it leaves the State. This road also has

numerous branches, principally to the iron mines in its vicinity. The chief of these is one leaving its main line near the centre of Menominee county and taking a northwesterly course through a corner of Wisconsin to Crystal Falls, in the southern part of Marquette county. This feeder reaches the new and rich iron mines of the Menominee district. Another branch extends from a point ten miles west of Escanaba, 37 miles northwest to what is known as the Felch Mountain iron district; another from a point south of Crystal Falls twenty miles west to the Iron River district (as yet undeveloped); a branch is also being constructed from Ishpeming to Champion, practically parallel with and reaching the same mines as the Marquette, Houghton and Ontonagon. The total length of this road and its branches in Michigan is 289 miles.

THE DETROIT, MACKINAC AND MARQUETTE LINE.

The Detroit, Mackinac and Marquette railroad extends from Marquette eastward across the county of Schoolcraft through a portion of Chippewa near its southern border, and thence across Mackinac to the Straits of Mackinac, where it connects with the lower peninsula system. It was completed in 1881, and furnishes the only line of railway communicating between the two peninsulas. Its plan also includes a branch from a point on its main line northwest of the Straits of Mackinac eastward to Sault Ste. Marie, and an extension of its main line to Ishpeming. There it will in the year 1884 connect with the Canadian railways which are being pushed into the northwest. It will then become an important link between the Northern Pacific and the Canadian systems, and form part of a continental line which will shorten by over two hundred miles the distance by railroad between the producers south and west of Lake Superior and the ocean ports of Montreal and New York. At present this road will command a large local traffic, the terminal points of what is now its main line, Marquette and St. Ignace, being ports advantageously situated for connection with the lake lines of transportation. The length of the completed portion of the Detroit, Mackinac and Marquette is 155 miles.

THE MARQUETTE, HOUGHTON AND ONTONAGON LINE.

This road extends from Marquette to L'Anse at the head of Keweenaw bay, passing through the productive iron mining districts of Marquette and Baraga counties and having numerous branches leading directly to the mines. Its total length with that of its branches is 90 miles. An extension to Ontonagon was part of the original project, and strong hopes are entertained of an early connection with that point. It is expected that ultimately this line will connect with the eastern terminus of the Northern Pacific, forming the link between it and the Detroit, Mackinac and Marquette, and thus becoming a part of the great trans-continental thoroughfare already described.

THE NARROW GAUGE ROADS OF THE UPPER PENINSULA.

The Portage Lake copper district has two lines of narrow gauge railroad, whose existence is chiefly due to the needs and enterprise of the Calumet and Hecla mine. The Mineral Range road (three feet gauge) extends from Calumet to Hancock, both in Houghton county, a distance of 12 miles. The Hecla and Torch Lake railroad, with a gauge of four feet one inch, and four miles in length, connects the Calumet and Hecla mine with Lake Linden on the banks of Torch Lake.

PROJECTED ROADS.

The map accompanying this pamphlet has been prepared from the best accessible authorities, and it is believed that it will be found to be accurate in all essentials.

In its preparation the effort was made to include all projected railroads, whether new lines or extensions of those already in operation, whose construction was then either actually commenced or seemed to be reasonably probable in the immediate future. In some instances there were no surveyed lines to be followed, and in others a departure from the route originally marked out seemed probable, and then only the general direction of the new road could be given. This was true of the proposed Alpena and Bay City road along the Lake Huron shore, and of some of the upper peninsula lines. Only the general course of the Sault Ste. Marie branch of the Detroit, Mackinac and Marquette is indicated. The Ontonagon extension of the Marquette, Houghton and Ontonagon follows on the map the direct line from L'Anse across the base of the Keweenaw peninsula, but its actual route is an unsettled question. This rule of giving the general direction merely was followed in mapping the lines of the projected roads of the upper peninsula yet to be mentioned.

The chief of these in immediate importance is the Ontonagon and Brulé River, already completed for twenty miles at its northern end. This extends from Ontonagon southeasterly to the Brulé river, and to a probable junction with the Wisconsin and Michigan (now being extended from Green Bay northwestward), and with the Menominee branch of the Chicago and Northwestern.

Another project of very great importance is the extension of the Northern Pacific from the western boundary of the State across the counties of Ontonagon and Marquette to a connection with the roads already built which lead eastward to Marquette and the Straits of Mackinac, and will soon reach Sault Ste. Marie. The Northern Pacific proper, as originally chartered by the general government, terminates at the boundary line between Michigan and Wisconsin. An extension eastward from Duluth, its present terminus, to that boundary is now in progress, and its advance across the upper peninsula to eastern connections cannot be long delayed.

The State has made a liberal grant of lands to secure the construction of a railroad from L'Anse to Houghton. This will give the rich copper mines of Keweenaw point permanent rail communication with all parts of the country, and thus will be of the utmost importance so that region. Men of enterprise and means have already taken hold of this project, and the preliminary surveys were commenced in 1881. The grade is completed and the iron will be laid during the present year.

Other projected railroads in the upper peninsula are these; 1, An extension of the Milwaukee, Lake Shore and Western road northward through Ontonagon county west of Lake Agogebic to Union Bay on Lake Superior; 2, a line from Minneapolis to Sault Ste. Marie, which Boston capitalists are considering; 3, the extension of the Wisconsin Central to some terminal point on Lake Superior; 4, a shore line from the Chicago and Northwestern through Manistique to St. Ignace.

No county of the upper peninsula except Keweenaw is now without its railroad line, either in actual operation or in a reasonably advanced stage of construction.

GENERAL FEATURES OF THE MICHIGAN RAILWAY SYSTEM.

The description given of the railroads of Michigan in the preceding pages will enable the inquirer to trace the course of any line upon the map, to ascertain the parts of the State which it supplies with railroad facilities, and to form some estimate of its value as a means of transportation. This table gives the present (June, 1883) mileage of Michigan railroads, and also the freight rates of 1881 as given in the report of the Railroad Commissioner of the State:

Current Statistics of the Railroads of Michigan.

ROADS AND THEIR BRANCHES.	Length (Jan. 1, 1883) Miles.	FREIGHT (1881) RATE PER TON PER MILE. Through.	Local.	Average.
Canada Southern Bridge	3	$0 00.37	$0 00.37	$0 00.37
Chicago & Canada Southern	63		03.032	03.032
Chicago & Grand Trunk	224	00.44	01.39	0.52
Chicago, Detroit & Canada Grand Trunk Junction	60	0.45	01.22	0.50
Chicago & Northwestern	289			01.48
Menominee River				
Escanaba & Lake Superior				
Chicago, Saginaw & Canada	38			05.64
Chicago & West Michigan R. R.	354			
Chicago & West Michigan R'y	13			02.02
White River	189	00.459	02.149	01.282
Detroit, Grand Haven & Milwaukee	64			
Detroit, Hillsdale & Southwestern	221			01.711
Detroit, Lansing & Northern	3			
Saginaw & Grand Rapids	155			
Detroit, Mackinaw & Marquette	282	00.472	01.455	01.43
Flint & Père Marquette	26			
Manistee	15			
Saginaw & Clare County	15			
Saginaw & M't Pleasant	46	01.32	02.27	01.59
Fort Wayne & Jackson	316	01.374	02.682	01.522
Grand Haven	11			
Grand Rapids & Indiana	193	00.460	00.700	00.617
Allegan & Southeastern	64			
Grand Rapids, Newaygo & Lake Shore	54			
Lake Shore & Michigan Southern	58			
Detroit, Hillsdale & Southwestern	36			
Detroit, Monroe & Toledo	61			
Kalamazoo, Allegan & Grand Rapids	90	06.23	03.16	03.34
Kalamazoo & White Pigeon	35	02.26	07.11	05.08
Northern Central Michigan	221	00.46	01.364	00.718
Marquette, Houghton & Ontonagon	147			
Michigan Air Line R'y	84			
Michigan Central	300			
Detroit & Bay City	40			
Grand River Valley	109			
Jackson, Lansing & Saginaw	14			05.07
Kalamazoo & South Haven	12	04.43	04.43	04.43
Michigan Air Line R. R.	4	21.09	21.09	21.09
Michigan Midland & Canada	219		02.80	02.80
Mineral Range	30			05.43
Paw Paw	29			
Port Huron & Northwestern	10			
Saginaw Bay & Northwestern	27		02.	02.
Saginaw Valley & St. Louis	56	01.274	03.993	01.888
St. Joseph Valley	47			00.585
Tawas & Bay County	16			15.61
Toledo, Ann Arbor & Grand Trunk	26	02.858	06.266	04.436
Toledo, Canada Southern & Detroit	78			00.923
Toledo & South Haven	24			
Traverse City				
Wabash, St. Louis & Pacific				
*Chicago, Wabash & Michigan				
ORE AND FOREST ROADS.				
Buckley & Douglas	9			
Hecla & Torch Lake	4			$0 03.00
Hobart & Manistee River	9			03.50
Lake County	6			
Lake George & Muskegon River	18			02.50
*Muskegon River & Rose Lake				
Total	4,557			01.13

*Not reported.

The Michigan Central, the Detroit, Grand Haven and Milwaukee, and the Michigan Southern and Lake Shore roads possess special charters, containing advantageous features. The policy of granting such charters was long since abandoned by the State and is now forbidden in its constitution. All other roads than those named are organized under a general law. The rapid development of the railway system of Michigan has been due to government and municipal aid as well as to natural causes.

The State itself built part of the older roads, soon selling them to private corporations. The United States and the State have made liberal grants of land to encourage the construction of lines in the northern counties, thus making it possible to build them in advance of settlement and business, and to make them lead in, and not wait for, the development of the country. The amount of the grants of land made by congress to Michigan in aid of railroads is nearly 5,000,000 acres, and over 3,000,000 acres have been earned by the construction of such roads. At one time also considerable aid was given to railroad enterprises by municipalities, but this policy was decided by the courts to be without constitutional warrant. These causes, added to the remarkable agricultural and industrial growth of Michigan, have given to its settled counties railway facilities fully equal to those of older States, and have made well equipped lines of road penetrate the northern forests, placing the pioneers of the new counties on an equality in this respect with their southern brothers.

The State has also made large grants of land for the construction of wagon roads in its northern portions. Some of these appropriations have not yielded adequate returns, but fortunately this is not true of many of them. The State wagon roads which have been honestly constructed under this policy, open up to travel many districts not reached by railroads, and thus materially promote their settlement.

THE STATE AND THE RAILROADS.

The State does not assume to control the business of the railroads, but does enforce upon them the observance of certain regulations which it regards as essential to the public safety. A Commissioner of Railroads appointed by the Governor acts as the agent in this respect between these corporations and the people, and to him the railroad companies are required to periodically make detailed reports of their operations and condition. The last published report of this officer showed that the cost of the railroads of Michigan up to 1881 had been $195,594,000; their present cost (June 1883) is in excess of $210,000,000. The other leading statistics of the railroads of Michigan at the close of 1881 were given in that report as follows: Total capital stock, $239,505,000; funded and floating debt, $268,500,000; earnings in 1880, $75,195,000; operating expenses in 1880, $50,271,000; number of bridges, 1,641 with an aggregate length of nearly 34½ miles; fencing, 5,672 miles representing a cost of $1,423,485; locomotives, 2,276; cars, 71,143; miles run by trains in the year, 49,455,927; passengers carried, 18,914,933; tons of freight carried, 37,779,565.

WATERWAYS TO THE SEABOARD.

The interior river system of Michigan contains only a small amount of navigable water. Lake vessels can ascend the Saginaw for a score of miles, and the tortuous channel of Portage river in the Upper peninsula has been so deepened and straitened that the largest class of steamers can enter Portage lake. The Grand, the Kalamazoo, the St. Joseph, the Clinton, and a few others will float vessels of light draft for short distances, but now possess only a very limited usefulness for transportation purposes. On the other hand the rivers which form part of the eastern boundary of Michigan—the St. Mary's, the St. Clair, and the Detroit—are in fact straits connecting great seas, and far superior in commercial importance to the Bosphorus and the Dardanelles. During each season they bear upon their surface thousands of vessels with cargoes valued at many millions.

Michigan has no interior canals in its lower peninsula. In Macomb county there is a short work of this kind, which is now used only for its water power, and is all

that represents a project of the early days of the State for connecting the Clinton and the Kalamazoo rivers and thus uniting the waters of Lakes Michigan and St. Clair. The upper peninsula has an important ship canal, connecting the upper extremity of Portage Lake with the western shore of Keweenaw point; it was built, with the aid of a government grant of lands, by a private corporation which still owns and controls it, collecting tolls at a low rate for its use. By its use vessels avoid a detour of 120 miles around the peninsula which it, with Portage lake and river, completely divides. Two first-class ship canals, situated on waters which form part of the State's boundary line, facilitate the navigation of the great lakes. They are located at the head of the St. Mary's river in the upper peninsula, and at the mouth of the St. Clair river in Lake St. Clair. Both are the property of the general government, and their use is not subject to tolls or charges of any kind.

THE NAVIGATION OF THE GREAT LAKES.

These improvements have, for the purposes of commerce, brought to a common level the waters of Lakes Superior, Huron, Michigan, and Erie. Vessels of a capacity of over 2,000 tons and drawing sixteen feet of water can now sail from Duluth or Chicago direct to Buffalo or the entrance of the Welland canal at Port Colborne. The most serious obstacle in their path is a ledge of limestone crossing the Detroit river near its mouth and locally known as "the Limekilns," which is troublesome to heavily laden vessels in certain conditions of the wind; the United States is now at work deepening the channel at this point so that boats drawing even eighteen feet of water may have a safe passage. The coast line of Michigan is entirely upon these great lakes, and all of its ports possess the commercial advantages attendant upon such a situation. Detroit, which has in its superb river a harbor of practically unlimited capacity, is especially fortunate in this respect. Michigan is divided into four customs districts with headquarters at Detroit, Port Huron, Grand Haven, and Marquette. Deputy collectors are appointed for every point possessing reasonable shipping facilities along the shores, such points thus becoming practically ports of entry and clearance. The government of the United States has also expended several millions of dollars for the improvement of the harbors of both peninsulas, and still annually makes liberal appropriations for this purpose.

THE CANALS BEYOND LAKE ERIE.

On reaching the foot of Lake Erie western produce shipped by water can reach the seaboard by one of two canal systems: 1, It can undergo re-shipment at Buffalo, and pass through the 350 miles of the Erie canal to the Hudson and New York in boats not drawing over seven feet of water, paying only the charges for handling at Buffalo; 2, It can pass through the 27 miles of the Welland canal, cross Lake Ontario, and reach tidewater of the St. Lawrence via the forty miles of the Lachine, Beauharnois, Cornwall, and Williamsburg canals which flank the St. Lawrence rapids. These Canadian canals will now pass vessels drawing nine feet of water, and the Dominion government is vigorously at work enlarging the capacity of this entire system. The Lachine will at this time admit vessels drawing twelve feet of water, and a similar enlargement of the Cornwall is well advanced. The improvement, now nearly completed, of the Welland canal has been of the most thorough and important character. By costly excavating, its upper level has been brought down to the level of Lake Erie, and it thus has an inexhaustible feeder for its entire length in that vast reservoir, and is no longer dependent upon small inland streams for the supply of water for its highest stretches. For twelve miles a new canal has been built, containing twenty-four locks of massive masonry and provided with numerous reserve basins which practically form a second and larger canal for a space of several miles. The cost of

these improvements to the Canadian government has not been less than $20,000,000, and the result is the deepening of the Welland to twelve feet in the locks for part of its length and to fourteen feet for part. This great work will not be fully completed until a new aqueduct is finished at Welland, and the enlarged canal has not yet been thrown open to the public.

PROPOSED IMPROVEMENTS AND THEIR EFFECT.

Even with the present capacity of the St. Lawrence canals shipments of breadstuffs from the upper lakes to British ports have been made repeatedly and successfully, and it is the belief of many shippers that the establishment of a regular, direct trade between the great lakes and Europe will become feasible when the projected enlargement of the entire system shall have been carried out, so that vessels drawing twelve feet of water can reach the lower St. Lawrence. Meanwhile the Welland enlargement, even in its incomplete stages, has led to the agitation of schemes for the deepening and widening of the Erie canal, and has stimulated a competition between the Canadian and New York systems which has led to the abolition of tolls. That the discussion of these projects will be followed by practical results in the form of more capacious and cheaper means of transportation beyond Lake Erie is inevitable, and every step in that direction will help Michigan commerce and bring the producers of this State nearer to eastern and foreign consumers of their surplus crops. Even under the present conditions, when the largest classes of lake vessels cannot pass the barrier of Niagara Falls, the waterways of the great lakes and of the eastern canals are of inestimable value to the farmers of Michigan and of the whole northwest in furnishing them with a transportation that is cheap in itself and is also of vast additional importance as a check upon railroad freight tariffs. Given improved conditions in the form of an enlarged Erie or of a Canadian canal system that will pass vessels of twelve feet draft to the Atlantic, and the advantage of Michigan in natural location will make itself still more signally manifest.

PRACTICAL ASPECTS OF THE TRANSPORTATION QUESTION.

Reserving the peculiar features of the commerce of the upper peninsula for special consideration under another head, the practical aspects of the transportation question with reference to the State at large may be summed up as follows. The great advantages possessed by the people of Michigan in the variety and the cheapness of the means of transportation between their farms, manufactories, and mines, and the great body of consumers outside the State, are these:

1. Almost the entire State has short rail communication with the lake ports, and thus can secure water transportation at cheap rates to the west, the east, and especially to the seaboard, for its grain, lumber, metals, salt, fruit, and other products.

2. It is traversed by railroads intimately connected with all of the great east and west trunk lines, and the lowest rail rates to the west, the east, the southeast, and the Atlantic coast can thus be obtained at all times by its shippers.

3. Its railroad lines are interwoven with each other to an unusual degree, and every important junction or point of contact enjoys the advantage of competition, and gets the benefit of low through rates. For some years the average charge for carrying freight of all the roads doing business in Michigan has been so low as to make them vigorous competitors during the season of navigation with the lake lines. The table on a preceding page shows that this rate was in 1881 less than one cent per ton per mile.

4. The points in Michigan at which rival railroads come in contact are so numerous, and their lines cross each other so frequently, that no combinations of the great trunk companies, and no pooling of interests on their part, can prevent local competition from making itself felt. The experience of the past fully sustains this statement, and the shipping points of Michigan have not been without the benefits of competition, even at times when the railroads were in theory acting in entire harmony.

5. Michigan is several hundred miles nearer the seaboard than either Iowa, Nebraska, Kansas, Minnesota, or Dakota, and practically than Wisconsin, the other grain producing States and territories of the northwest which also have cheap lands for sale in large quantities. The selling prices of all surplus crops in this region are determined by the prevailing rates in the Atlantic cities, which in turn are controlled by the condition of the European markets. Wheat of the same quality will sell in New York for the same price, whether raised in Michigan or farther west, but it can be carried to New York from Michigan at a cheaper rate than from any point beyond the lakes; therefore the farmer in this State can get for his crop a price as much higher than that which his western competitor can command as the rates of freight are in his favor. This is one of the important causes producing the results exhibited in the comparative tables on pages 34 and 35. As a matter of fact it has during the last few years cost the farmers of the northwest from seven to seventeen cents more per bushel to market their exported wheat than it has those of Michigan, and this difference the producers of this State have realized in the shape of better prices. What is true of wheat, the most valuable staple of this region, is also true of the other surplus products which seek an eastern, southeastern, or foreign market.

6. From nearly all the principal cities of Michigan shipments can be made on the most advantageous terms to the eastern consumers or to Atlantic ports. Many interior towns now compete with Detroit in this respect, and the tendency of railroad management is toward the multiplication of these smaller points of direct through shipment. Such a system helps the producer, who gets in an increased price the benefit of the saving effected by thus avoiding the high local freight charges, the expenses of reshipment, and the commissions of middle-men at one point.

7. During the season of 1882 wheat was shipped from Detroit to New York, by lake and canal, at a cost of but seven and one-fourth cents per bushel, excluding insurance. Within the last few years the highest rate known between these points has been about nineteen cents per bushel; a fair average between these two extremes on the entire amount of wheat shipped in all seasons during several years would be from ten to twelve cents per bushel. These low rates enure to the benefit of the farmers of Michigan, who have always obtained fair prices for their crops. They have never found it necessary to imitate the example of the less fortunate settlers on some of the prairies of the far west, who have found it more profitable to use their grain for fuel than to pay the charges for transporting it to a market.

DISTANCES AND PASSENGER FARES.

The rates charged for the transportation of passengers by railroads, boats, and stages change with the varying conditions of competition. The accuracy of any table of fares is only certain at the date of its compilation, and it is not possible to give in advance the actual prices at which tickets may be bought at any season or year. Still, as there is no very wide variation for any long period in the general rates of travel, such a table possesses some permanent value, and its figures will not be likely to differ much at any time from current prices of tickets. The tables which follow

were prepared in May, 1883; at that time the great railroad lines were acting in harmony, and there were no "cutting of rates" between competing points. The passenger tariffs were thus at their highest figures, and any subsequent change during 1883 will naturally be in the direction of a decline and not of an increase. Therefore, it is not probable that it will cost more this year to reach any point in Michigan than the sum named in these tables.

Distributing Points.—Immigrants coming to Michigan from the ocean ports, the Eastern States, or Canada will naturally reach *Detroit or Port Huron.* The rates of fare between those cities and the six principal Atlantic ports are as follows:

Table of Fares Between Ocean Ports and Detroit and Port Huron.

PORTS.	TO DETROIT.				TO PORT HURON.			
	1st Class Unlimited.	1st Class Limited.	2nd Class.	Emigrant.	1st Class Unlimited.	1st Class Limited.	2nd Class.	Emigrant.
Baltimore	$17 00	*$14 25	*$13 30	†$9 45	$16 00	*$14 25	*$13 30	.....
Boston	18 15	*17 00	*16 15	†10 00	17 15	*17 00	*15 15	†10 00
Montreal	15 70	.....	10 65	‡9 00	14 70	.....	9 95	‡9 00
New York	16 25	*15 00	*14 25	†10 00	15 25	*15 00	*13 25	†9 00
Philadelphia	17 00	*14 50	*13 65	‡11 00	16 00	*14 50	*12 65	**9 40
Quebec	20 20	.....	13 65	†10 00	19 20	.....	12 95	†10 00

*2 days' limit. †4 days' limit. ‡3 days' limit. **5 days' limit.

The railroad center which emigrants to Michigan from the southeast and south would most naturally reach is *Fort Wayne,* Ind.

Those coming from the southwest or west will commonly pass through or by *Chicago* on their way to this State.

Grand Rapids, the adjoining cities of *East Saginaw* and *Saginaw,* and *Mackinac City* at the northern point of the lower peninsula, are important centers in interior Michigan of railroad lines leading into the newer parts of the State.

The table gives the distances and fares from all these points to distributing centers in the northern counties with which they have convenient and direct communication. It will be found that the points of destination selected suggest the most accessible routes to all the newer portions of the State.

Distances. The distances in the table are not direct but by the lines of travel indicated; those by water are close estimates, not actual measurements.

Classes of Tickets. There are three classes of railroad tickets: 1. *First-class,* of which there are two kinds, namely, *unlimited* and *limited.* An *unlimited* ticket is good until used, and is sold at a higher rate than a *limited* ticket which must be used within a few days from the date of its purchase. 2. *Second-class,* which are cheaper, but entitle the buyer to ride in second-class cars on regular trains. 3. *Emigrant* (sold only to those who come from Europe), which are cheaper still and whose holders are usually carried in trains specially reserved for immigrants. All *emigrant* and *second-class* tickets are *limited:* the exceptions to this rule are too rare to make them important. All cars are warmed in winter, provided with water, and otherwise made comfortable for travelers. Children under five years of age are carried free, and children between five and twelve years at half-fare. One hundred and fifty pounds of baggage can be carried free on each full first and second-class ticket; for baggage in excess of that amount a small charge is made.

The railroads of Michigan, as a rule, sell only *first-class* tickets, but they carry at reduced rates *second-class* and *emigrant* passengers coming to them over other lines. *Any one coming to the State should buy a thorough ticket to a point as near his actual destination as possible;* he will thus secure the benefit of through rates and

all existing competition. The rail rates given in the table are all *unlimited*, except the second-class fares from Detroit to Escanaba and Menominee, and from Chicago to Escanaba, Houghton, L'Anse, Marquette, and Menominee; these tickets must be used within three days from the date of sale. Conductors furnish "lay-over checks" to holders of *unlimited* tickets who wish to stop off at points on their journey; these are good for at least ten days.

Nearly all of the boat lines sell two classes of tickets, *cabin passage* and *deck passage*. All first-class boat fares given in the table include berths and meals, unless prefaced by an *; second-class fares do not.

Routes. Competing routes are given in the table, and a better knowledge of them can be ascertained by an examination of the map. The abbreviations used in the column relating to this subject are these:

C. & N. W.—Chicago and Northwestern.
C. & W. M.—Chicago and West Michigan.
D., G. H. & M.—Detroit, Grand Haven and Milwaukee.
D., L. & N.—Detroit, Lansing and Northern.
D., M. & M.—Detroit, Mackinac and Marquette.
F. & P. M.—Flint and Pere Marquette.
F. W. & J.—Fort Wayne and Jackson.
G. R. & I.—Grand Rapids and Indiana.
G. T.—Grand Trunk.
M. C.—Michigan Central.
B. C. Div.—Bay City Division.
M. Div.—Mackinac Division.
S. Div.—Saginaw Division.
M. H. & O.—Marquette, Houghton and Ontonagon.
P. H. & N. W.—Port Huron and Northwestern.

Table of Fares and Distances to Distributing Centers for the Newer Counties of Michigan.

FARES AND DISTANCES FROM DETROIT.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Alpena	Alpena	By boat direct	235	*$2 50	$2 00
		M. C.—B. C. Div. (to Bay City) and boat	228	5 00	
		F. & P. M. (to Bay City) and boat	241	5 00	
		(See below to Standish) from Standish by stage	90	8 00	
Baldwin	Lake	F. & P. M.	215	6 15	
		M. C.—B. C. Div. (to East Saginaw) and F. & P. M.	212	6 15	
Bay City	Bay	M. C.—B. C. Div.	108	3 25	
		F. & P. M.	121	3 25	
Big Rapids	Mecosta	D., L. &. N.	189	5 45	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	214	5 45	
		M. C. (to Grand Rapids) and G. R. & I.	227	5 45	
Cadillac	Wexford	F. & P. M. (to Reed City) and G. R. & I.	226	6 50	
		D., L. & N. (to Howard City) and G. R. & I.	224	6 45	

* Meals and stateroom extra.

FARES AND DISTANCES FROM DETROIT.—CONTINUED.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Cadillac	Wexford	D., G. H. & M. (to Grand Rapids) and G. R. & I.	255	$6 45	
		M. C. (to Grand Rapids) and G. R. & I.	268	6 45	
Cedar	Gladwin	F. & P. M. (to Loomis) and stage	171	5 55	
Charlevoix	Charlevoix	(See below to Petoskey) from Petoskey by boat or stage	16	1 00	
		By boat direct		*5 00	$3 50
Cheboygan	Cheboygan	M. C.—B. C. and M. Div.	273	8 25	
		F. & P. M. (to Bay City) and M. C.	286	8 25	
		By boat direct	302	*3 00	2 00
Eagle River	Keweenaw	By boat direct	652	*18 00	10 00
		From Hancock, opposite Houghton (see below), by rail to Calumet, thence by stage	28	1 75	
East Saginaw / Saginaw	Saginaw	F. & P. M.	109	2 95	
		M. C.—B. C. Div.	106	2 95	
Elk Rapids	Antrim	(See below to Traverse City) from Traverse City by stage	18	1 00	
Escanaba	Delta	M. C. (to Chicago) and C. & N. W.	640	19 80	15 85
		D., G. H. & M. (to Grand Haven), boat to Milwaukee, and C. & N. W.	516	17 05	14 50
Farwell	Clare	F. & P. M.	164	4 60	
		M. C. (to East Saginaw) and F. & P. M.	161	4 60	
Frankfort	Benzie	(See below to Manistee) from Manistee by stage	30	2 50	
Gaylord	Otsego	M. C.—B. C. & M. Div.	226	6 85	
		F. & P. M. (to Bay City) and M. C.	239	6 85	
Grand Rapids	Kent	D., G. H. & M.	157	4 75	
		M. C.	170	4 75	
Grayling	Crawford	" —B. C. & M. Div.	200	6 05	
		F. & P. M. (to Bay City) and M. C.	213	6 05	
Harrisville	Alcona	By boat direct	198	*3 50	3 00
		M. C.—B. C. Div. (to Bay City) and by boat	208	5 00	
		F. & P. M. (to Bay City) and by boat	221	5 00	
		(See below to Standish) from Standish by stage	75	5 50	
Hart	Oceana	D., G. H. & M. (to Ferrysburg) and C. & W. M.	237	7 15	
Houghton	Houghton	By boat direct	530	*16 00	9 00
		(See below to L'Anse) from L'Anse by boat (summer)	32	1 50	
		(See below to L'Anse) from L'Anse by stage (winter)	32	3 00	
Howard City	Montcalm	D., L. & N.	160	4 80	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	191	4 80	
		M. C. (to Grand Rapids) and G. R. & I.	204	4 80	
Ionia	Ionia	D., G. H. & M.	124	3 70	
		D. L. & N.	122	3 70	
Ishpeming	Marquette	M. C. (to Mackinac City), D., M. & M. (to Marquette) and M. H. & O.	460	16 35	
Jackson	Jackson	M. C.	76	2 30	

* Meals and stateroom extra.

FARES AND DISTANCES FROM DETROIT.—CONTINUED.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Kalamazoo	Kalamazoo	M. C.	144	$4 30	
Kalkaska	Kalkaska	F. & P. M. (to Reed City) and G. R. & I.	266	7 65	
		D., L. & N. (to Howard City) and G. R. & I.	264	7 65	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	295	7 65	
		M. C. (to Grand Rapids) and G. R. & I.	308	7 65	
Lake City	Missaukee	(See above to Cadillac) from Cadillac by stage	15	1 00	
L'Anse	Baraga	By boat direct	500	*16 00	$9 00
		M. C. (to Mackinac City) D., M. & M. (to Marquette) and M., H. & O.	508	18 25	
Lansing	Ingham	D., L. & N.	85	2 55	
Lexington	Sanilac	By boat direct	92	*1 50	
		G. T. (to Port Huron) P. H. & N. W. (to Croswell), and stage	93	2 90	
Ludington	Mason	F. & P. M.	246	7 05	
		M. C. (to East Saginaw) and F. & P. M.	243	7 05	
Mackinac City	Cheboygan	M. C.—B. C. & M. Div.	290	8 75	
		F. & P. M. (to Bay City) and M. C.	303	8 75	
		By boat direct	320	*3 00	2 00
Manistee	Manistee	F. & P. M.	255	7 35	
		M. C. (to East Saginaw) and F. & P. M.	252	7 35	
Marquette	Marquette	M. C. (to Mackinac City) and D., M. & M.	446	15 75	
		By boat direct	450	*13 00	8 00
Menominee	Menominee	M. C. (to Chicago) and C. & N. W.	548	17 25	14 00
		D., G. H. & M. (to Grand Haven), boat to Milwaukee, and C. & N. W.	452	14 50	12 50
Michigamme	Marquette	M. C. (to Mackinac City), D., M. & M. (to Marquette), and M., H. &. O.	483	16 75	
Midland	Midland	F. & P. M.	128	3 55	
		M. C. (to East Saginaw) and F. & P. M.	125	3 55	
Mt. Pleasant	Isabella	F. & P. M.	164	4 60	
		M. C. (to East Saginaw) and F. & P. M.	161	4 60	
Muskegon	Muskegon	D., G. H. and M. and C. & W. M.	200	5 95	
Negaunee	Marquette	M. C. (to Mackinac City), D., M. & M. (to Marquette), and M., H. & O.	457	16 25	
Newaygo	Newaygo	D., G. H. & M. (to Grand Rapids) and C. & W. M.	192	5 85	
		M. C. (to Grand Rapids) and C. & W. M.	205	5 85	
Northport	Leelanaw	(See below to Traverse City) from Traverse City by stage	30	1 50	
Ontonagon	Ontonagon	By boat direct	580	*18 00	10 00
		(See above to L'Anse) from L'Anse by stage	48	6 00	
Pentwater	Oceana	D., G. H. & M. and C. & W. M.	241	7 20	
Petoskey	Emmet	D., L. & N. (to Howard City) and G. R. & I.	317	9 25	
		F. & P. M. (to Reed City) and G. R. & I.	319	9 25	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	348	9 25	
		M. C. (to Grand Rapids) and G. R. & I.	361	9 25	
		By boat direct		*4 50	3 50

* Meals and stateroom extra.

FARES AND DISTANCES FROM DETROIT.—CONTINUED.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Port Austin	Huron	By boat direct	160	*$2 00	
		(See below to Sand Beach) from Sand Beach by stage	24	2 00	
Port Huron	St. Clair	G. T.	62	1 85	
		By boat direct	70	*1 00	
Port Sanilac	Sanilac	By boat direct	103	*1 50	
		G. T. (to Port Huron), P. H. & N. W. (to Farmers) and stage	105	3 20	
Reed City	Osceola	F. & P. M.	197	5 60	
		D., L. & N. (to Howard City) and G. R. & I.	195	5 60	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	226	5 60	
		M. C. (to Grand Rapids) and G. R. & I.	239	5 60	
Rogers City	Presque Isle	By boat direct	270	6 00	$3 00
		(See above to Alpena) from Alpena by stage	45	4 00	
Roscommon	Roscommon	M. C.—B. C. & M. Div.	184	5 60	
		F. & P. M. (to Bay City) and M. C.	197	5 60	
Sand Beach	Huron	By boat direct	132	*1 50	1 00
		G. T. and P. H. & N. W.	132	3 95	
Sault Ste. Marie	Chippewa	By boat direct	350	*8 00	4 50
		(See above to Mackinac City) from Mackinac City by ferry (to St. Ignace) and stage	60	6 00	
Standish	Bay	M. C.—B. C. & M. Div.	135	4 10	
		F. & P. M. (to Bay City) and M. C.	148	4 10	
Stanton	Montcalm	D., L. & N.	146	4 40	
		D., G. H. & M. (to Ionia) and D., L. & N.	148	4 40	
St. Louis	Gratiot	F. & P. M. (to East Saginaw) and S. V. & St. L.	144	3 95	
		M. C. (to East Saginaw) and S. V. & St. L.	141	3 95	
Tawas City	Iosco	M. C.—B. C. Div. (to Bay City) and by boat	163	4 50	
		F. & P. M. (to Bay City) and by boat	176	4 50	
		(See above to Standish) from Standish by stage	38	3 00	
Traverse City	Gd. Traverse	D., L. & N. (to Howard City) and G. R. & I.	271	7 90	
		F. & P. M. (to Reed City) and G. R. & I.	273	7 90	
		D., G. H. & M. (to Grand Rapids) and G. R. & I.	302	7 90	
		M. C. (to Grand Rapids) and G. R. & I.	315	7 90	
Vassar	Tuscola	M. C.—B. C. Div.	86	2 60	
West Branch	Ogemaw	M. C.—B. C. & M. Div.	160	4 90	
		F. & P. M. (to Bay City) and M. C.	173	4 90	

FARES AND DISTANCES FROM PORT HURON.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance. Miles.	FARES. 1st Class.	FARES. 2d Class.
Alpena	Alpena	By boat direct	165	*$2 50	$2 00
Cheboygan	Cheboygan	" "	232	*3 00	2 00
Eagle River	Keweenaw	" "	582	*18 00	10 00
East Saginaw / Saginaw	Saginaw	P. H. & N. W.	91	2 75	
Harrisville	Alcona	By boat direct	128	*3 50	3 00
Houghton	Houghton	" "	460	*15 00	8 00
L'Anse	Baraga	" "	430	*15 00	8 00
Lexington	Sanilac	" "	22	*75	
		P. H. & N. W. (to Croswell) and stage	31	1 05	
Mackinac City	Cheboygan	By boat direct	250	*3 00	2 00
Marquette	Marquette	" "	380	*13 00	8 00
Ontonagon	Ontonagon	" "	510	*18 00	10 00
Port Austin	Huron	" "	90	*1 75	
		P. H. & N. W.	87	2 60	
Port Sanilac	Sanilac	By boat direct	33	*1 00	
		P. H. & N. W. (to Farmers) and stage	43	1 35	
Rogers City	Presque Isle	By boat direct	200	6 00	3 00
Sand Beach	Huron	" "	62	*1 00	75
		P. H. & N. W.	70	2 10	
Sault Ste. Marie	Chippewa	By boat direct	280	*8 00	4 50
Bad Axe	Huron	P. H. & N. W.	70	2 10	
Almont	Lapeer	P. H. & N. W.		1 00	

FARES AND DISTANCES FROM FORT WAYNE.

Bay City	Bay	F. W. & J. (to Jackson) and M. C.—S. Div.	214	$6 30	
Big Rapids	Mecosta	G. R. & I.	198	5 95	
Cadillac	Wexford	" "	240	7 20	
Cheboygan	Cheboygan	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	381	11 70	
East Saginaw / Saginaw	Saginaw	F. W. & J. (to Jackson) and M. C.—S. Div.	201	6 30	
Gaylord	Otsego	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	334	10 30	
Grand Rapids	Kent	G. R. & I.	142	4 25	
Grayling	Crawford	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	307	9 50	
Howard City	Montcalm	G. R. & I.	176	5 30	
Kalkaska	Kalkaska	" "	280	8 65	
Mackinac City	Cheboygan	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	397	12 30	
Mackinac City	Cheboygan	G. R. & I.	368	11 05	
Petoskey	Emmet	G. R. & I.	333	10 00	
Reed City	Osceola	" "	211	6 35	
Roscommon	Roscommon	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	292	9 05	
Standish	Bay	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	243	7 55	
Traverse City	Gd. Traverse	G. R. & I.	287	8 60	
West Branch	Ogemaw	F. W. & J. (to Jackson) and M. C.—S. and M. Div.	268	8 35	

FARES AND DISTANCES FROM CHICAGO.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Charlevoix	Charlevoix	By boat direct	265	$6 00	$3 00
Eagle River	Keweenaw	From Hancock opposite Houghton (see below) by rail to Calumet, thence by stage	28	1 75	
East Saginaw and Saginaw	Saginaw	M. C. —Main line (to Jackson) and S. Div.	308	8 20	
Escanaba	Delta	By boat direct	350	7 00	5 00
		C. & N. W.	328	11 80	9 85
Frankfort	Benzie	By boat direct	190	5 00	4 00
Grand Rapids	Kent	M. C. (to New Buffalo) and C. & W. M.	181	5 45	
		M. C. (to Kalamazoo) and G. R. & I.	188	5 45	
Houghton	Houghton	C. & N. W. (to Negaunee), M., H. & O. (to L'Anse) and boat or stage	470	17 85	14 55
L'Anse	Baraga	C. & N. W. (to Negaunee) and M., H. & O.	438	16 35	13 05
Ludington	Mason	By boat direct	150	4 50	4 00
Mackinac City	Cheboygan	" "	295	7 00	
Manistee	Manistee	" "	175	4 50	4 00
Marquette	Marquette	C. & N. W. (to Negaunee) and M., H. & O.	402	14 85	11 55
Menominee	Menominee	C. & N. W.	264	9 25	8 00
		By boat direct	300	6 00	4 00
Muskegon	Muskegon	" "	108	3 00	2 50
Ontonagon	Ontonagon	(See above to L'Anse) from L'Anse by stage	48	6 00	
Traverse City	Gd. Traverse	By boat direct	300	6 00	

FARES AND DISTANCES FROM EAST SAGINAW AND SAGINAW.

Baldwin	Lake	F. & P. M.	106	$3 20
Bay City	Bay	M. C.—S. Div.	14	40
		F. & P. M.	13	40
Cedar	Gladwin	F. & P. M. (to Loomis) and stage	62	2 60
Cheboygan	Cheboygan	M. C.—S. & M. Div.	179	5 40
Farwell	Clare	F. & P. M.	55	1 65
Gaylord	Otsego	M. C.—S. & M. Div.	132	4 00
Grayling	Crawford	" " "	106	3 20
Ludington	Mason	F. & P. M.	237	4 10
Mackinac City	Cheboygan	M. C.—S. & M. Div.	196	5 90
Manistee	Manistee	F. & P. M.	146	4 40
Midland	Midland	" "	20	60
Mt. Pleasant	Isabella	" "	55	1 65
Reed City	Osceola	" "	89	2 70
Roscommon	Roscommon	M. C.—S. and M. Div.	90	2 75
Standish	Bay	" " "	41	1 25
St. Louis	Gratiot	S. V. and St. L.	33	1 00
West Branch	Ogemaw	M. C.—S. & M. Div.	66	2 05

FARES AND DISTANCES FROM GRAND RAPIDS.

DESTINATION.	COUNTY.	RAILROADS, BOATS, OR STAGES.	Distance.	FARES.	
			Miles.	1st Class.	2d Class.
Big Rapids	Mecosta	G. R. & I.	56	$1 70	
Cadillac	Wexford	" "	98	2 95	
Howard City	Montcalm	" "	34	1 00	
Kalkaska	Kalkaska	" "	138	4 15	
Lake City	Missaukee	(See above to Cadillac) from Cadillac by stage	15	1 00	
Manistee	Manistee	G. R. & I. (to Reed City) and F. & P.M.	124	3 80	
Muskegon	Muskegon	D., G. H. & M. (to Ferrysburg) and C. & W. M.	43	1 25	
Newaygo	Newaygo	C. & W. M.	35	1 10	
Petoskey	Emmet	G. R. & I.	191	5 70	
Reed City	Osceola	" "	69	2 05	
Traverse City	Gd. Traverse	" "	145	4 35	
Mackinac City	Cheboygan	" "	226	6 75	

FARES AND DISTANCES FROM MACKINAC CITY.

Houghton	Houghton	(See below to L'Anse) from L'Anse by boat	32	$1 50	
		(See below to L'Anse) from L'Anse by stage	32	3 00	
Ishpeming	Marquette	Ferry to St. Ignace), D., M. & M. (to Marquette) and M., H. & O.	170	7 10	
L'Anse	Baraga	Ferry (to St. Ignace), D., M. & M. (to Marquette) and M., H. & O.	218	9 00	
Manistique	Schoolcraft	Ferry (to St. Ignace) and stage	98	11 00	
		" " " " boat	98	*5 00	$4 50
Marquette	Marquette	" " " " D., M. & M.	156	6 50	
McMillan	Chippewa	" " " " " "	71	3 00	
Michigamme	Marquette	" " " D., M. & M. (to Marquette) and M., H. & O.	193	8 00	
Negaunee	Marquette	Ferry (to St. Ignace), D., M. & M. (to Marquette) and M., H. & O.	167	7 00	
Newberry	Chippewa	Ferry (to St. Ignace) and D., M. & M.	57	2 65	
Ontonagon	Ontonagon	(See above to L'Anse) from L'Anse by stage	48	6 00	
Palms	Mackinac	Ferry (to St. Ignace) and D., M. & M.	25	1 25	
Sault Ste. Marie	Chippewa	" " " " stage	60	6 00	
St. Ignace	Mackinac	By ferry	5	50	

(During the winter season, the ferry fare is $1.00.)

THE UPPER PENINSULA.

It has been found most convenient in the preparation of this book, having due regard to the simplicity and coherence of its arrangement, to treat the various subjects referred to therein by topics rather than by sectional divisions. Any especial reference to the Upper Peninsula, distinctively, will be only supplementary, therefore, to what is said concerning its great natural wealth and resources on other pages. Its enormous iron and copper interests, and its growing lumber and manufacturing enterprises, have been mentioned in connection with other industries of the State, and its topography, railway system, and general characteristics are grouped under corresponding titles with similar features elsewhere.

The extraordinary affluence of this territory in minerals has diverted attention from its agricultural capabilities. During the last few years homesteads have been located in the eastern portion, but most of the lands heretofore bought from government lying in the westerly counties have been selected for mining or lumber purposes. It is becoming every day better known however that the region not long ago deemed so remote, and still associated chiefly with iron and copper, contains resources in the soil of some of its sections not less bountiful than those which are dug from its mines.

AGRICULTURAL DEVELOPMENT.

The winter wheat of Chippewa county, where ten years ago no wheat was raised, received the first premium at the Michigan State Fair of 1881. Soil, climate, and experience combine to assure for this cereal a large and successful production in most of the counties of the upper peninsula. The cultivation of oats, barley and buckwheat has been pursued for years in many locations with remunerative results. The field peas which the Lake Superior counties send to market are marvels in productiveness and size. Their potatoes are sought for family use by housekeepers in Detroit and elsewhere who are familiar with their quality, and the crops they yield are enormous. Noxious insects, whose ravages are often so fatal to the hopes of farmers further west, are there entirely unknown. "The chief products of the soil," it was stated in the first report of the Commissioner of Mineral Statistics in words that will apply generally to that region, "are grass, hay, oats, potatoes, rutabagas, garden vegetables, and small fruits. Owing to the deep snows of winter, stock raising has received but little attention. But that the country is well adapted to the raising of cattle, the writer knows by seeing how rapidly imported animals take on flesh grazing upon the native grasses of the country, which spring up as soon as the forests are cleared, and are fully equal in every respect to the celebrated Kentucky blue grass. This grass remains green, if it does not grow all winter, under the deep snows of that latitude; the ground does not freeze, and as soon as the snow disappears in spring the pasturage is good. Cattle-raising, also sheep-raising, could be made a profitable industry in the mining regions, we have no doubt; the period for foddering cattle, after all, would be no greater than that which rules in the vicinity of the State capital." In some portions of this region apples and plums arrive at great perfection. Thrifty and well-stocked kitchen gardens are numerous in the more populous districts, and the wild berries of the whole country are famous for their abundance, size, and flavor. The mines have for years absorbed the energies and the means of settlers in the upper peninsula, and it is only recently

that agriculture has received attention in any part of that region. But a change has now commenced—is, indeed, well advanced—which is destined to assume new and increasing proportions. All the indications are that the gardens of the mining districts and the wheat farms of Chippewa county will soon be spoken of as the pioneer ventures of an important agricultural interest, and that the products of the Lake Superior counties will form a considerable item in the "Farm Statistics" of Michigan. The opening of the Detroit, Mackinac and Marquette railroad, passing to a great extent through a country susceptible of valuable agricultural development, is giving increased impetus to the growth of that part of the State. The completion of the Ontonagon and Brulé river line, now in process of construction, and which will cross the western portion of the peninsula from Ontonagon to its southern boundary, and the extension through the same region of the east and west lines, which cannot be long delayed, will also aid largely in bringing out resources in which those who are most familiar with their possibilities have great faith. The home markets of the upper peninsula will afford for many years a steady demand for the products of its soil. A hardy class of immigrants are already seeking the cheap and promising lands to be found within its territory, and there can be no doubt that within a few years its agricultural productions will bear a much nearer proportion to those of its mines. It is rich, also, in the quality and variety of its hard woods, some of which are rapidly acquiring prominence by their adaptability to ornamental purposes, as substitutes for varieties whose growing scarcity is constantly increasing their cost.

CLIMATE.

The climate of the upper peninsula is of course colder than that of the southern portions of the State. It is also more equable, and the people of that region are hardy, healthy, and long lived. Invalids find vigor in its dry and bracing atmosphere, and it has long enjoyed a reputation as a spot where the debilitated could regain strength from the healing influences of nature. The annual mean temperature of Marquette, according to the last report of the United States Signal Service (for 1879), was 43.6°.

WAGON ROADS.

Settlers in the upper peninsula are by no means dependent upon its railroad system for facilities of travel. By the aid of grants of land from the State many wagon roads have been substantially built, which open up large tracts of country and will prove important aids to their development. These roads have been in the main wisely planned, and supply a great expanse of territory with valuable means of communication with railroad stations or settlements on the lake shore.

TRADE AND TRANSPORTATION.

The railroad system of the upper peninsula and the waterways which are open to its commerce have already been fully described. Its carrying trade has been in the past almost wholly confined to the importation of supplies and to the shipment of the bulky metals and ore which are yielded by its mines. Naturally the lakes have furnished the chief channel for this traffic, and the business of the railroads of that country has been largely local in character, and limited to completing the connection between the lake ports and the centers of mining industry. During the winter suspension of navigation the single line of the Chicago and Northwestern was for many years the only outlet, and it enjoyed the benefits of a monopoly of passenger travel and of such freight business as was not transacted during the open season. The completion of the Detroit, Mackinac and Marquette and its southern connections gives a much more direct means of communication with the continental railway system. This new line will certainly command its share of the local traffic, control the railroad

business between the two peninsulas, and prove a vigorous competitor with the Northwestern for through travel and freight. It is thus an important addition to the railroad facilities possessed by the developed districts of the upper peninsula, aside from its value as a means of opening to settlement an entirely new tract of country.

There is no probability of any essential changes in the general character of the commerce of the Lake Superior region in the immediate future. The development of its agricultural capabilities will for some years merely lessen the amount of supplies its mines will import, and its farmers will go no farther than the brisk home market to dispose of their surplus crops. The shipments of its mineral product will continue to be made chiefly by water, and its railroads will find their main source of income in their passenger and local freight business. But when its development, which is certain to be both rapid and steady, shall have multiplied its population, diversified its industries, and given a more complex character to its commerce, the advantages of its location will become plainer. The great lakes will still be the servants of its merchants and shippers. The railroads that are already in existence will connect it with the great trunk lines of to-day. By that time also it will be traversed from Montreal river to Sault Ste. Marie by a great trans-continental thoroughfare, passing north of Lakes Huron, Erie, and Ontario, and reaching an ocean port at Montreal. It will thus always be within easy reach of the southern, eastern, and seaboard markets by rail or vessel, and this important assurance is one of the attractions which it holds out to settlers.

UNOCCUPIED LANDS.

There are eight to ten millions of acres of unoccupied lands in Michigan, which are capable of being made profitable in agriculture. The table which is printed on the face of the map accompanying this pamphlet points out where many of these lands may be found.

UNITED STATES LANDS.

There are about 300,000 acres of land yet belonging to the United States in the lower peninsula. Except in a few counties these are generally in small tracts, among which are occasional 80 or 40 acre lots of a desirable character, some of them in the vicinity of valuable State or railroad lands. The greater portion, embracing a considerable diversity of soil, lies in the northeastern counties bordering upon or near Lake Huron, more than half of the whole amount being situated in Presque Isle, Montmorency, Oscoda, and Iosco. In the upper peninsula there are 1,000,000 acres, lying in greater or less proportions in every county. Locations of government land in that region heretofore have been mainly for mining and lumber, but increase of railroad communication is rapidly drawing attention to its agricultural character.

HOW TO ACQUIRE TITLE.

Title to government lands may be acquired either by settlement under the homestead law or by purchase. Under the former process any person who is a citizen, or has legally declared his intention to become such, may obtain a homestead of 160 acres (or less) of contiguous lands, by filing an application describing the land he has selected, and an affidavit asserting his purpose to be actual settlement and cultivation. The fees required to be paid when this entry is made are $14 for 160 acres; $7 for 80 acres; and $6 for 40 acres. After a residence of five years and reasonable improvements upon the land, and before seven years have expired, he must prove such residence and improvement to the satisfaction of the district land office, paying a further fee of $4 on locations of 160 acres, $2 for 80 acres, and $1 for 40. He will then receive a certificate showing his compliance with the requirements of the law, and without further payments the land will be his own in fee, and the government will issue its patent to that effect. Lands entered under the homestead laws of the United States are exempt from taxation by the State during their probationary occupancy. The laws also declare that "no lands acquired under the provisions of this chapter (on homesteads) shall in any event become liable to the satisfaction of any debt contracted prior to the issuing of the patent therefor."

The only way except by purchase that government lands may be acquired is under the homestead laws, which in their general application demand actual residence and cultivation on the part of the settler during a period of five years before the completion of title. Persons who served ninety days or more in the army, navy, or marine corps during the Rebellion may, if they choose, deduct from this period of five years the time covered by their period of service, not to exceed four years, and may also hold a tract selected in person or by an agent for six months before

entry. But there must be at least one year's actual *bona fide* residence and cultivation of the homestead. This exceptional right to perfect title on a shorter occupancy than is required of those who have not performed military service becomes of practical value chiefly if the settler desires to make early sale of his land. In States where there are "double minimum" lands—that is, alternate sections of tracts covered by railroad grants, which are held at $2.50 an acre—a "soldier's homestead" may be selected from among them to the extent of 160 acres, other settlers being limited to 80 acres. In this State there are no "twenty shilling lands." When the title passes from the United States to an individual the land becomes subject to taxation.

All of the government lands in market in this State are now offered to purchasers in sections or fractions of sections at the rate of $1.25 per acre. Any person may become the owner of such lands by making application at the district land offices, describing the tracts desired, and paying therefor at this rate.

UNITED STATES SYSTEM OF SURVEYS.

The system of United States surveys which governs the description of lands in this State and elsewhere is based on meridian lines running north and south, and base lines drawn from east to west. The meridian line of Michigan forms the boundary between Hillsdale and Lenawee counties, and extends through the entire length of the State to the St. Mary's river. The base line crosses it at right angles on the north line of Jackson county, running due east and west from Lake Michigan to Lake St. Clair, and forming the northern boundary of the second tier of counties. Townships are numbered in northern and southern directions from the base line. Ranges (as they are called) are numbered in eastern and western directions from the meridian line. The intersection of a given range (east or west) with a given township (north or south) describes a locality. Township No. 4 north, of Range No. 2 west, for example, designates the township in which Lansing, the capital of the State, is situated, and means that it is in the fourth tier of townships north of the base line, and in the second range of townships west of the meridian line. Counties laid out on a uniform plan usually contain sixteen townships; each township is six miles square, and contains 36 square miles; each square mile is called a section; each section has 640 acres of land, and is divided into sixteen equal parts of 40 acres each, and each subdivision of 40 acres or more is described by its geographical relations to the whole section. Thus, the exact locality of the capitol building is on the west half of section number sixteen, in township number four north, of range number two west; or in the abbreviations usually employed it is the W. ½ of Sec. 16, T. 4 N. of R. 2 W. These descriptions carry a certain and specific meaning, and are used in legal conveyances. Lands which have been private property for many years retain their original designation. The State, the railroad companies, and individual landholders employ the same method of describing lands in their transactions with purchasers.

THE GOVERNMENT LAND OFFICES.

A government office for the sale of United States lands is established in each land district, of which there are four in Michigan. The officers in charge are designated respectively a Register and a Receiver. The limits of each district are closely defined, and the officers in one have no relations to the territory of another.

The Detroit district covers the eastern and earliest settled portions of the State, in which the government lands were long since disposed of, together with the eastern portion of the Huron peninsula, Alpena, Montmorency, Presque Isle, and parts of Otsego and Cheboygan counties. The office is located in the City of Detroit, and on the 1st of May, 1883, it had on sale about 78,000 acres of land situated in the following counties:

Cheboygan	4,666 acres	Presque Isle	28,320 acres
Otsego	3,561 "	Montmorency	37,660 "
Alpena	4,040 "		

The Saginaw district embraces the territory lying in the lower peninsula east of the meridian line and not included in the Detroit district, with parts of Gratiot, Midland, Gladwin, Roscommon, and Crawford. The office is at East Saginaw. The lands remaining unsold in October, 1881, amounted to about 127,000 acres and were situated as follows:

Alcona	9,370 acres	Ogemaw	1,560 acres
Crawford	16,260 "	Oscoda	67,150 "
Iosco	28,000 "	Roscommon	4,940 "

The Reed City district includes all the lower peninsula not covered by the Detroit and Saginaw districts, dividing Cheboygan and Otsego with the former and Crawford and Roscommon with the latter. It has its office at Reed City, in Osceola county, and holds about 78,000 acres of land in the counties named below:

Antrim	571 acres	Manistee	14,888 acres
Benzie	3,750 "	Manitou	15,393 "
Charlevoix	154 "	Mason	4,767 "
Cheboygan	2,075 "	Missaukee	2,833 "
Clare	2,075 "	Montcalm	40 "
Crawford	6,197 "	Muskegon	1,166 "
Emmet	2,344 "	Newaygo	588 "
Grand Traverse	1,893 "	Oceana	1,111 "
Gratiot	120 "	Osceola	160 "
Isabella	40 "	Ottawa	80 "
Kalkaska	4,100 "	Otsego	200 "
Lake	3,120 "	Roscommon	6,513 "
Leelanaw	2,935 "	Wexford	1,006 "

The Marquette district covers the upper peninsula. The office is at Marquette, and nearly five-sixths of all the lands belonging to the United States government which lie in the State of Michigan are at its disposal, and numbered in May, 1883, about 928,090 acres. These lands were distributed among the following counties:

Baraga	57,000 acres	Mackinac	26,500 acres
Chippewa	187,000 "	Marquette	192,000 "
Delta	124,000 "	Menominee	33,450 "
Houghton	52,600 "	Ontonagon	157,000 "
Isle Royal	14,640 "	Schoolcraft	80,400 "
Keweenaw	3,500 "		

EXPERIENCE NEEDED IN SELECTING LANDS.

It is not wise for inexperienced persons to undertake the selection of lands without the aid of practiced examiners. The United States district officers have no other information in regard to specified tracts than is contained in the surveyor's notes, and these are not sufficiently precise to lead to an intelligent judgment. Settlers will always be able to acquire a general knowledge of the local characteristics of a neighborhood through reliable people in the vicinity, and for a moderate fee may procure the services of an experienced surveyor or agent. But the ultimate choice should depend upon a careful consideration of the questions which a man must determine for himself, and which involve all the points of soil, timber, exposure, drainage, schools, churches, accessibility to markets, and future growth.

Letters addressed "Register and Receiver U. S. Land Office," at either of the places mentioned above as the location of a Government Land Office, will reach their destination.

LANDS BELONGING TO THE STATE.

The lands offered for sale by the State are of three classes, and are known respectively as Swamp Lands, School Lands, and College Lands.

SWAMP LANDS.

The lands which are thus described came into possession of the State under a general law of Congress passed in 1850, which ceded to each State "the swamps and overflowed lands" remaining unsold therein, and known and described as such on the public surveys, for purposes of drainage and reclamation. Under this act Michigan received 5,891,598 acres. It has been found on actual examination that many of these lands are not swamp, but are composed of some of the best soils known to Michigan, bear some of the finest timber, are level or rolling in character, and are easily converted into rich and productive farms. The presence of overflowed or swampy ground on some portions of a section undoubtedly caused many such tracts to be characterized as wet lands in the surveyor's notes, while most of their legal subdivisions were not only dry but were particularly valuable for purposes of agriculture. It is known that some of them have proved to be among the best farming and timbered lands in the State. Liberal use has been made of these lands in opening up large sections of country by the construction of wagon-roads, paid for in special grants, and directly subsidiary to the purposes of the original cession by the drainage which resulted not only from the building of the roads but from the consequent settlement and cultivation.

These so-called Swamp Lands are offered generally for $1.25 per acre. In a few townships in the northern part of the State they are held at $2 per acre. One hundred and sixty acres or less lying in one body can be bought on payment of a quarter of the price at the time of purchase, by any person who will make affidavit that he will settle on the land within one year, and that it is not valuable mainly for the pine, cedar, or hemlock timber growing thereon. Ten years' time, with interest at seven per cent annually, is allowed on the remainder of the purchase money.

These lands are also subject to homestead entry in lots of 80 acres or less upon certain conditions. The application must show that the applicant—man or woman—is 21 years of age or upwards, and is not the owner of forty acres of land anywhere in the United States; that he or she intends to settle upon, occupy, cultivate, and improve the land described in the application, and has never taken a State homestead before. A fee of $2 must accompany the application, which will be returned if a license to locate is not granted. If the land is found to be vacant, and the required qualifications are satisfactory, the applicant receives a license, under the terms of which he or she must immediately settle upon, and continue for five years to reside upon, occupy, and improve the land. Within three months proof of settlement and of the beginning of improvements must be filed with the Commissioner of the Land Office. After five years of residence the settler may obtain a patent from the State without additional charge. Any person having a State homestead may purchase adjoining Swamp Lands on the terms given above, but his total number of acres, including the homestead cannot exceed 160.

Nearly 170,000 acres of Swamp Lands ceded to the State remain undisposed of.

SCHOOL LANDS.

Those who have read the account in the preceding pages of the generous endowment of lands made by Congress for primary school purposes will readily understand the meaning of this term. The State has yet in its possession about 340,000 acres. They are held at $4 per acre. In cases where these lands are valuable for pine,

cedar, or hemlock timber they must be paid for in cash at the time of purchase; where they are valuable mainly for farming purposes time is given on half their cost. Persons who desire to buy partly on credit must accompany their application with an affidavit, duly verified and indorsed, giving a description of the land selected, and the kinds and estimated quantities of the timber growing thereon, and the Commissioner will then decide whether it is of the class upon which credit can be given. Blank forms of affidavits will be furnished by the State Land Office. After the first payment has been made on what are held to be strictly farming lands, and which must be at least one-half their value, unlimited time will be allowed on the remainder, which will bear interest at seven per cent, and may remain unpaid at the option of the purchaser as long as the interest is promptly met.

There are many good lands to be had under this description in the northern counties of the State. The table which follows will indicate their locality. Some counties contain extensive areas lying in contiguous tracts.

COLLEGE LANDS.

These lands are a grant from the United States for the benefit of the Agricultural College. They are all in the lower peninsula, and in its northern counties. The law under which they were ceded admitted of a choice from "the public lands subject to sale at private entry at $1.25 per acre," excluding mineral lands, and they were carefully selected by experienced land examiners after personal inspection with reference especially to their agricultural qualities. Similar conditions attend their sale as those which exist in regard to the School Lands, but they are held at a higher price. Where their timber resources are a primary consideration, the price of $5 per acre must be paid at the time of purchase; when valuable principally for farming purposes the same price is demanded, but three-quarters of the purchase money may remain on interest at seven per cent for an unlimited period. There are about 140,000 acres yet in the market.

THE STATE LAND OFFICE.

The State Land Office, at Lansing, under the charge of a Commissioner, has the management of all public interests pertaining to the State lands. It employs no local agents, and business with it may be transacted by correspondence. It advertises in its official circulars that the office "cannot give information about the soil and timber of any particular lot, but buyers and settlers are advised to examine for themselves before taking." It will furnish plats, however, to aid in looking up State lands, at established rates, viz.: Plats showing vacant lands, 25 cents per township; same with streams drawn, 50 cents per township; same showing vacant lands, streams, and names of purchasers of State lands, $1.50 per township. Plats showing all the vacant State lands in any county will be furnished at prices ranging from 25 cents to $4, according to the amount involved. The United States system of surveys, heretofore explained, regulates the usages of the Land Office, and in ordering plats of townships it is necessary to give number and range.

The Land Office will also furnish all needed instructions as to forms of procedure in acquiring title to State lands, together with blanks for the affidavits which are required. Money may be forwarded by post-office orders, registered letters, national bank drafts on New York or Detroit, or by prepaid express. Personal checks are not credited until collected. Post-office orders and bank drafts should be made payable to "Commissioner of the State Land Office," and correspondence should be addressed to that officer, at Lansing, Michigan.

State Lands Subject to Entry May 1st, 1883.—Description and Acres.

COUNTIES.	Swamp.	School.	College.	COUNTIES.	Swamp.	School.	College.
Alcona	9,801	6,483	22,970	Lenawee	------	------	------
Allegan	308	2,505	------	Livingston	680	40	------
Alpena	21,108	5,520	880	Mackinac	------	29,488	------
Antrim	126	3,000	4,200	Macomb	------	------	------
Baraga	------	10,814	------	Manistee	877	2,440	6,800
Barry	------	31	------	Manitou	2,002	1,523	------
Bay	678	2,194	------	Marquette	40	38,836	------
Benzie	2,191	1,560	4,280	Mason	240	895	------
Berrien	------	40	------	Mecosta	40	400	------
Calhoun	40	40	------	Menominee	921	11,616	------
Charlevoix	344	1,955	3,525	Midland	168	2,846	------
Cheboygan	14,712	9,220	5,408	Missaukee	7,350	2,039	1,479
Chippewa	297	31,767	------	Monroe	292	219	------
Clare	509	3,098	------	Montcalm	40	80	------
Clinton	------	48	------	Montmorency	6,701	6,160	8,105
Crawford	10,451	4,939	------	Muskegon	------	2,837	------
Delta	431	14,024	------	Newaygo	------	2,727	------
Eaton	219	40	------	Oakland	------	------	------
Emmet	4,550	2,773	------	Oceana	40	120	------
Genesee	40	------	------	Ogemaw	3,330	4,082	------
Gladwin	2,066	960	------	Ontonagon	4,234	32,520	------
Gr'nd Traverse	1,160	1,445	520	Osceola	141	1,382	------
Gratiot	240	800	------	Oscoda	1,196	5,280	15,604
Hillsdale	------	------	------	Otsego	6,852	4,435	4,037
Houghton	------	12,407	------	Ottawa	------	1,133	------
Huron	------	620	------	Presque Isle	25,107	9,628	480
Ingham	400	80	------	Roscommon	16,207	3,623	------
Ionia	------	------	------	Saginaw	1,914	------	------
Iosco	13,009	5,004	26,874	Sanilac	143	1,280	------
Isabella	------	520	------	Schoolcraft	40	33,241	------
Isle Royal	3,787	3,876	------	Shiawassee	------	------	------
Jackson	80	400	------	St. Clair	890	200	------
Kalamazoo	40	------	------	St. Joseph	------	------	------
Kalkaska	1,836	3,886	1,240	Tuscola	------	1,155	------
Kent	------	------	------	Van Buren	360	243	------
Keweenaw	------	2,083	------	Washtenaw	------	------	------
Lake	406	3,888	------	Wayne	------	------	------
Lapeer	------	160	------	Wexford	310	3,400	24,560
Leelanaw	804	1,421	------				

[In this table fractions of acres are omitted. There are besides those enumerated 200 acres of "University land" in Kalamazoo, 20 in Berrien, and 67 in Ottawa; and 160 acres of "asset land" in Lapeer.

RAILROAD AND CANAL LANDS.

Various grants of land have been made from time to time by the general government providing for the construction of railroads through new portions of the State. The State has also made grants of its own which have been used for similar purposes. The amount of land acquired through these grants by various railroad and canal companies, and yet remaining in their possession is about three millions and a half of acres, some portions of it having only a contingent value, depending upon the discovery of mineral resources. The chief value of those which are indicated in the tables which follow, and in the table printed on the map preceding these pages, lies in their timber and agricultural capabilities.

The grants made by the general government were of alternate sections lying within six miles of the lines of railroad they were intended to advance, and it was provided that in cases where such sections had been already disposed of, indemnity lands might be appropriated within a range of fifteen miles of the track. Supplementary legislation extended this right in one or two exceptional instances to a distance of twenty miles, but it is evident that lands of this character are none of them very remote from railroads, while the greater portion lie in convenient proximity. They are not all good lands, but some of the best the State affords can be found among them, and their soil, timber, and location present a wide range of selection. In disposing of them their owners have general rules on which sales are regulated, but are liberal in their treatment of purchasers as regards time and terms of payment, and settlers who improve their farms and keep their taxes and interest paid are assured of kindly consideration. Particulars will be promptly furnished on application by letter or otherwise to the land commissioners or agents whose names and addresses are mentioned below. Three companies own all the railroad lands in the lower peninsula, and the principal grants under which they derive their titles were made by congress in 1856, when large sections of the country which their lines traverse were parts of an almost unbroken wilderness. One of these is

THE FLINT AND PERE MARQUETTE.

Its line extends from Monroe in the southeastern corner of the State to Ludington on Lake Michigan, and the lands which it holds lie in every county through which its track passes between the head of Saginaw bay and its western terminus, and in some of the adjoining counties. The company holds its strictly farming lands—or lands which are not valued principally for their pine—at from five to ten dollars per acre. The terms are one-fourth down, and the remainder distributed in three to five equal annual payments, with interest at seven per cent. The rule is not inflexible, however, and smaller cash payments are sometimes accepted when it is apparent the settler is in good faith seeking a home. William L. Webber, East Saginaw, is the land commissioner of the company, having in charge all interests pertaining to the grant. The number of acres remaining in its possession in May, 1883, was about 110,000, divided among the counties named as follows:

Saginaw	2,500 acres	Mecosta	6,600 acres
Gratiot	1,200 "	Osceola	6,000 "
Midland	8,500 "	Newaygo	8,500 "
Gladwin	1,600 "	Lake	24,000 "
Isabella	4,500 "	Oceana	4,700 "
Clare	3,100 "	Mason	38,800 "

GRAND RAPIDS AND INDIANA.

This line extends from Fort Wayne in Indiana to Traverse City and Petoskey on Grand and Little Traverse bays, and was completed to the Straits of Mackinac, at Mackinac City, during the summer of 1882. Its lands are situated principally in the counties intersected by its rails between the northern limits of Kent and the southern boundary of Emmet. The land commissioner is W. O. Hughart, at Grand Rapids. The company numbers its farming lands at about 479,692 acres, upon which prices range from $3.50 to $7.50 per acre. One-quarter of the purchase money is required to be paid at the time of sale, and the remainder in five equal annual payments at seven per cent interest, ten per cent discount being allowed when the price is paid in full at the time of purchase. The figures below represent the quantity of land held in each county lying within the limits of the grant:

Allegan	334 acres	Lake	35,178 acres
Antrim	89,069 "	Montcalm	1,120 "
Branch	2 "	Mecosta	7,937 "
Charlevoix	42,285 "	Missaukee	36,878 "
Clare	807 "	Manistee	4,209 "
Emmet	160 "	Newaygo	6,054 "
Grand Traverse	36,440 "	Ottawa	40 "
Isabella	40 "	Osceola	49,736 "
Kent	277 "	Otsego	520 "
Kalamazoo	5 "	St. Joseph	9 "
Kalkaska	76,171 "	Wexford	92,426 "

JACKSON, LANSING AND SAGINAW.

The Jackson, Lansing and Saginaw company has for all practical purposes become merged in the Michigan Central. Its line begins at Jackson, on the latter road, and deflecting to Saginaw bay, reaches the extreme northern limits of the lower peninsula at Cheboygan and Mackinac City. The land business of the corporation is managed O. M. Barnes, lannd commissioner, at Lansing, and prices, as advertised in its publications, "vary from two dollars per acre upwards." The terms are one-quarter down, and the remainder in five equal yearly payments, with interest at seven per cent. The company owns lands in all the counties penetrated by the line between Saginaw bay and the Straits of Mackinac, and in some contiguous counties, numbering in the aggregate about 331,227 acres, distributed as follows:

Antrim	10,080 acres	Montmorency	305 acres
Bay	4,360 "	Roscommon	37,697 "
Charlevoix	10,218 "	Ogemaw	9,090 "
Cheboygan	67,593 "	Oscoda	2,150 "
Crawford	100,808 "	Otsego	74,490 "
Gratiot	780 "	Saginaw	1,200 "
Kalkaska	10,360 "	Other counties	1,180 "
Missaukee	960 "		

DETROIT, MACKINAC AND MARQUETTE.

This line, recently opened on the upper peninsula, forms a connection with the roads of the lower peninsula by means of a ferriage at Mackinac City, and unites St. Ignace on the Straits with Marquette on Lake Superior and the Marquette, Houghton and Ontonagon railroad, extending westward. Its construction was promoted by a grant from the State, and it owns about 1,277,456 acres of land in the counties which it intersects. W. O. Strong, Detroit, is the land commissioner of the company, whose prices for strictly agricultural lands range from four to ten dollars per acre. The terms of sale require a payment in cash of one-quarter of the purchase money, the remainder being payable at the option of the buyer, within ten years, with seven per cent interest annually. The grant is contained in four counties, viz.:

Chippewa	404,809 acres	Marquette	236,258 acres
Mackinac	258,087 "	Schoolcraft	378,300 "

CHICAGO AND NORTHWESTERN.

The Chicago and Northwestern railway corporation, the main lines of which extend in other directions, has a branch which enters Michigan at Menominee and reaches by way of Escanaba to Negaunee, near Marquette, and a smaller one diverging westward into the Menominee iron district. Part of its lands were received from the general government and part from the State. The entire amount owned in Michigan is about 478,000 acres, with prices ranging on those not held chiefly for timber from $2 to $10 per acre, one-fifth to be paid in hand, and the remainder in five equal yearly payments, with interest at six per cent, payable annually in advance. F. H. Van Cleve, Escanaba, has charge of sales. The acreage is divided as follows:

Menominee	94,105 acres	Marquette	144,380 acres
Delta	166,540 "	Schoolcraft	73,600 "

LAKE SUPERIOR SHIP CANAL RAILWAY AND IRON CO.

The lands of this company were acquired under grants to aid in the construction of the Portage Lake canal. They were selected chiefly for mineral and pine, but the agent of the company at Marquette estimates that 55,000 acres in Houghton and 150,000 acres in Ontonagon are suitable for agriculture. All mineral rights are reserved in their sale, and prices to settlers range from $2 to $5 per acre, one-fifth in cash at the time of purchase, and the remainder payable in four equal annual payments, with interest at six per cent. J. M. Longyear, Marquette, is the agent.

ST. MARY'S CANAL MINERAL LAND CO.

This company is the owner of the remaining lands lying in the upper peninsula which belonged to the grant made by the general government in 1852 for the construction of the ship canal around the falls of St. Mary's. It estimates its agricultural tracts at 35,000 acres, and the prices placed thereon range from $2.50 to $10 per acre. The terms of sale are not inflexible, but the custom is to require a cash payment of one-third the purchase money, leaving the remainder to be paid in three equal annual payments, bearing interest at seven per cent. R. R. Goodell, at Houghton, acts as agent for the company. The lands lie in the following counties:

Houghton	8,000 acres	Ontonagon	20,000 acres
Keweenaw	5,000 "	Baraga	2,000 "

The company has in addition 90,000 acres lying on the copper range, which is for sale without reservation, at prices not yet fixed.

THE MICHIGAN LAND AND IRON COMPANY—(LIMITED).

Lands formerly in the possession of the Marquette, Houghton and Ontonagon railroad corporation under a government grant are represented by this company. Parties interested think that of 391,000 acres thus represented not to exceed one-quarter are adapted to farming purposes, and these lie in nearly equal proportions in the counties of Marquette and Baraga. They are held at from $2 to $8 per acre. B. J. Stevens, Madison, Wisconsin, will furnish information concerning these lands.

IN THE HANDS OF PRIVATE OWNERS.

It is estimated by intelligent men who have made real estate operations a business that there are in the newer counties of this State, in the hands of private individuals, from one to two million of acres of wild lands, much of it taken up at government prices, which were selected with especial reference to their agricultural value, and are held for an advance on their cost. Generally these are known as beech and maple lands, bearing a large proportion of hard or sugar maple, and they offer an inviting field of selection to those who are looking for an opening to first-class farms. In price they vary from $3 to $10 per acre, depending not only on their quality but on their neighborhood, accessibility to markets, and the relative and prospective growth of the surrounding country.

There are at least as many more acres in the market, and belonging to private parties that are known as "stump lands." These are lands from which the pine timber has been cut, leaving standing the remaining trees of the native forest, consisting of beech, maple, basswood, elm, hemlock, etc. It has been explained in previous pages of this pamphlet that the best pines grow among hard wood. The soil of a large proportion of these "stump lands" is rich and productive, and in the han[redacted]

of diligent cultivators will follow its wealth of timber with an equal abundance of good crops. Prices differ, as in other lands, according to location and quality, but selections may be had within a wide range varying from $2 to $8 per acre.

Partly improved farms, the owners of which, in the changing vicissitudes of life, may desire to sell, or which may have fallen into the possession of people living at a distance, can sometimes be bought at very low figures.

It is, of course, impossible to give a definite idea of the selling prices of improved lands in the State at large. The nature and extent of the improvements, the condition of the buildings and fences, the growth of its orchards, and the skill and industry with which it has been cultivated, bear relations to the value of a farm quite as specific, if not so important, as its location and soil. It may be said, however, that farms in the older settled counties of the State, not exceptional in their buildings and in well established neighborhoods, in reasonable proximity to churches, schools, railroad stations, and markets, can be purchased at prices varying from $25 to $75 an acre. Farming lands can be bought in even the most populous counties at a lower figure than this minimum, and there are some under high cultivation and having an especial value in their buildings and position which will command considerably more than the amount named in the other direction. But a fair medium in the prices of average farms in the older portion of the State lies between the limits indicated. North of those counties the average is, of course, very considerably lower, although choice and well improved farms in the more advanced localities and in favored neighborhoods will always, as elsewhere, bring prices to correspond with their advantages.

SOME PRACTICAL HINTS.

The peculiar advantages which settlement in Michigan offers to farmers seeking new homes lie mainly in its exceptional adaptation to mixed husbandry, the accessibility of all its parts to general markets, its facilities for transportation, the established character of its institutions and its society, its light public burdens, its certain and rapid growth in the future, and the readiness with which good lands can now be bought for a little money. Nevertheless, to enjoy these advantages some money is necessary. To invest it judiciously is the first consideration, and after all attainable information has been procured the individual judgment must determine the rest.

Persons coming here from other States or countries should, as early as possible, form some idea of the part of the State in which they prefer to settle. It will be comparatively easy after that to acquire definite knowledge of neighborhoods. The county seats and business centers of those parts of the State in which the unoccupied lands are situated always contain competent men who are willing to impart the benefit of their own knowledge to those who are desirous of making a settlement, and the information to be derived from intelligent and trustworthy citizens possessing a local acquaintance with the country is more satisfactory and minute than any that can be obtained from books and advertisements. Then before purchasing there should be a careful and personal examination of the land itself, and of its vicinity and opportunities. The man who buys a farm for the home of himself and his family without exercising his own judgment will be very apt to fail in any enterprise he may undertake.

There need be no trouble in this State about titles. The greater portion of its soil can be traced directly to the possession of the United States government, through few hands and by a simple transmission. Abstracts of title, certified by the register

of deeds of each county, who has the custody of its real estate records, are always to be had at the demand of the purchaser, in transactions with individuals, and county treasurers can furnish histories of the tax records, and where these are satisfactory all the rest is safe. Whether buying of Government, of the State, of railroad companies or of individuals, the careful purchaser will always be sure, however, that his deed or evidence of title contains a correct description of his land.

There are many advantages attending the settlement of new countries in colonies. A company of several families may largely reduce to each member the expenses of choosing a location, outfit, etc., and at the same time preserve the comforts and benefits of old associations. In cases where considerable tracts of land are thus taken up, if purchased from railroad companies or individuals, some modifications may be expected in the price.

After all, ultimate success will depend upon individual traits of character. Without industry, frugality, sobriety, and common sense, there is not much prospect for any one, anywhere, or in any pursuit. It is only claimed for Michigan that these qualities will have fair play here under peculiarly favorable conditions.

It is hardly necessary to add that the office of the Commissioner of Immigration is not an agency for the sale of lands of either a public or private character. Neither does it recommend in answer to general inquiries any particular sections of the State. Whatever information it can furnish, however, in regard to all sections will be promptly rendered.

EXPERIENCE IN NORTHERN MICHIGAN.

Mr. George E. Steele, now of Traverse City, has resided in the northern counties of this State for twenty years. He is a graduate of the Agricultural College, a surveyor by profession, has been a practical farmer, was formerly a member of the Legislature from Antrim county, and has the confidence of his neighbors. In the discharge of his ordinary avocations he has unusual opportunities of obtaining a personal knowledge of Northern Michigan, and in response to a request to that effect he has furnished for this pamphlet a series of practical suggestions which are here subjoined, and which have a general application.

SUGGESTIONS FOR SETTLERS.

BY GEORGE E. STEELE, TRAVERSE CITY.

The settler in securing a location, if he would be pleasantly situated and not meet with disappointment, must not go at hap-hazard, but must be governed by certain fixed principles, easily understood, and which others, sometimes at a loss, have helped by their experience to fix. Some of these worth heeding may be mentioned.

WHAT SETTLERS SHOULD EXPECT.

I. If you are determined to be a fixture in any part of Michigan, *govern yourself in a measure by the practices and conditions of the particular locality.* This does not mean that a man is not to make his impress on a community he is in; but it does mean that if he goes into Northern Michigan from Southern Illinois, or any far distant point, he is not to expect just what he left, either in habits of society, in practices of agriculture, or products. It would be folly for him to expect to find corn growing sixteen feet high, and because he could not take "two looks and a turn about" over the prairie to declare that Michigan is a fraud; or because tobacco and sweet potatoes are not the principal products of the new country he had set foot in, to say it was useless for men to try farming there. It is not expected that an Iowa man will bring with him a breaking plow eighteen feet long and ten yoke of trained oxen to break up a stumpy farm. And yet there are men coming into Michigan who think they can just drive right through a hard maple stump, not even entrapping their coat-tails. We have seen men, who had lived on prairies, take timbered farms, and with axes in hand, go out to work in the morning only thinking how they could "spare that tree." "It is so very high to the top of this timber!" "What a pity this cannot be saved!" "Where we came from they would pick up every chip." There is no doubt that more economy of timber in Michigan would be appreciated by those who come after us, and the wealth of timber here is being more and more valued, but if you stop and show pity you will never have a farm cleared up. The fuller you are of good long days' works and the less you theorize about what people do somewhere else, the sooner your fields will be yielding their increase.

A DIFFERENCE IN MEN.

Men generally seek new homes that they may better their condition, but some are

averse to change, and are determined to find fault with any country that does not have just what they are accustomed to. It was only recently the writer talked with a gentleman from Cass county in this State, who was looking in Grand Traverse county for a new location. He had been out two days in the roughest part of the county and concluded to go back home on the next train, declaring he had seen all he wanted, and would not take hilly land as a gift.

A case right the opposite is in point: Mr. Adams of Benzonia went there eighteen years ago, selected a high, rough location where a few trees had been chopped, cut a road winding up among the hills, and went to work. The seedling peaches by the stumps near the old log shanty grew rapidly and other fruit was planted. He told us a few days ago that his peach trees had borne sixteen years without a failure, and this year, as poor a year for fruit as it is, he had 200 bushels of peaches, besides a good crop of grapes and pears, and a fair crop of apples, plums, cherries and small fruits. He has not cultivated fruit as thoroughly as it should be, but it seems determined to bear. We measured a peach tree twelve inches in diameter branching into a three-parted head eighteen inches from the ground, each branch a large top in itself. The log buildings have been replaced by a nice frame house and frame barn with basement stable. Board fences have taken the place of brush hedges; the family have taken more lands, and a day of comfort and competence dawns for them. If this man had said "I don't believe fruit will grow here, the soil must be poor," and "I am so far out of the world I can't sell it if I had it," he might still have been in Minnesota—*but not eating his own peaches.*

A NEW COUNTRY REQUIRES NEW METHODS AND NEW IDEAS.

Our first hint will be of practical value from the great diversity of soil, surface, climate, and other conditions found in a State as large as Michigan. There is a decided change from the level plateau of the Saginaw valley to the high lands of Otsego county, with an elevation of 900 feet above the lakes. The Michigan fruit-belt, bordering Lake Michigan and Grand and Little Traverse bays, is known to be very well adapted to fruit culture, and to some extent already has distinctive features. The development of the light sandy lands called "plains" is gradually going on and will require special agriculture, and bring about new processes and products now little thought of. So one must not judge by his home notions.

THE PRODUCTIVENESS OF SANDY AND GRAVELLY SOILS.

The writer was walking along the track of a railroad in northern Michigan, in company with some men who had been in the practice of tilling a stiff soil. They remarked that such heavy sugar maple, elm, and basswood timber generally indicated good soil, but that the sandy and gravelly land was a problem. "See here," said one, "here is a good timothy, three feet tall and not yet in bloom, growing from the very bottom of an excavation." This was the length of a spade handle below the original surface. Farther examination showed that the large embankments taken from deep cuttings were grassed over with rank grass and herbage growing upon them. In each case the place was most unlikely to be so soon growing herd's grass. It is no longer a question whether the sandy lands (and we mean now those lands so very sandy as to raise a suggestion to the owner that he had better strengthen his title to hold them) can be made to produce clover; and if clover, then the other crops adapted to the locality and stock. There are numerous instances, and every year they are increasing, where such fields show for themselves, and show well. The past season the writer saw heavy lodged clover, so rank and thick to mow that it would make one think dinner time never would come, on what was originally light pine lands or "plains" which had been fertilized with stable manure.

EXPERIENCE WITH BURNT LANDS.

Mr. A. T. Case, register of deeds of Benzie Co., about eighteen years ago bought from the Government some burnt lands, with light soil, partly timbered with the remains of a light growth of hard timber, hemlock and pine. The burnt parts were thickly covered with blackberry briers. He had a hard race with the briers, and his first attempts at clovering were not successful, so that it became a matter of grave doubt with him whether grass seed would catch in that soil. But to use his own words "to seed down to clover now is easy enough. I cut good hay and keep sheep. My land grows firmer and better every year. I am satisfied my first seedings were not deep enough."

WHAT THE NEWER COUNTIES ARE DOING UNDER NEW CONDITIONS.

It is hard to give up old ways and conform to new, or to make allowances for a change of surroundings. The man from Richmond, Ind., gets his spring plowing all done and goes to Petoskey to look up a farm for his "Jeremiah," who is about coming of age. The ice is hardly out of the bay and the robin sits on one leg in a thick hemlock, out of the cold blast. The next scene is a ticket office and a journey home, and "no such miserable country for him where snow hangs on nine months in the year, and where people can raise nothing but 'tourists' and 'taters.'" Most persons would be glad of one crop a year of these, if the potatoes were eighty cents a bushel. A change of 400 miles in latitude ought to make some difference in the planting and harvesting of crops, and it does. So long though as Chippewa county takes the premium on wheat, and Grand Traverse sends down the premium fruit, we ought to be careful of running to that other extreme, and saying that "the climate is so cold that none but a Russian can live there," as bad as an old fogy almanac which gives the climate of all places according to their northing.

The productiveness of the older portions of Michigan has long been known, but the newer and northern portions have been under the ban of doubt. These counties are now filling up with an industrious population, and are demonstrating their capabilities beyond the expectations of their best friends. Wherever farming is done there as it should be, there are satisfactory results.

THE SELECTION OF A HOME.

II. *Look well after your lands, but don't look too long.* The foundation of success in farming is often in the character of the soil (as already mentioned) or in some advantage in location. The latter can not be foreseen in all respects, but some sites are clearly better than others. The man who locates behind a range of hills with no outlet for his timber "misses the mark." So does the one who selects a low, frosty flat, when he could just as well take a rolling, elevated tract. He who selects in a remote place may soon find himself in the midst of a thriving settlement, and those who once pitied that poor family who were obliged to go back into the woods so far from neighbors may see the day when they will be sorry that they too were not of the company. It takes courage to do it but that is what wins. As illustrating such success after hardships encountered of this kind, we may mention the Reeder families and W. J. Morey of Missaukee county, the Danvilles of Manistee county, and the Monroes of Grand Traverse county. These all braved the hardships and far-away loneliness, and conquered the forests. The lumbermen came nearer—came to their very barns—and bought all they had to spare, and the long hauling to market was saved and a better price obtained. This success brought others, and soon permanent thriving settlements sprang up around them, and *they were out of the woods.* The writer well recollects trying to induce some families to take land at what is now Fife Lake in Grand Traverse county, 23 miles from Traverse City. It was then a

tract of pine bordering the small lake, with good farming lands farther back, but without a road, except a survey of a State road just made. The first question was, "How far back is it?" and no sooner was it answered than the offer was refused. Now, the village of Fife Lake, with railroad, mills, stores, and general business, does not tell the same story. But the very best location will not insure success. Some men will starve where others thrive. The fields on the one hand will blossom with thistles and on the other bear luscious fruits.

We say, don't look too long, for many in the confusion of sight-seeing are disconcerted. They believe every report, and run hither and yon only to find their last state worse than the first. Good openings can be found in any county for enterprise and labor; and so far as the cheaper lands in the newer counties are concerned they lie in all directions.

THE CHOICE OF A GOOD NEIGHBORHOOD.

III. *Select with some reference to the society best suited to your inclinations and needs.* Social privileges may be said to grow from seed planted, and the future of a town or settlement is largely determined by the character of its pioneers. So for long years after we point to one and say, "It is bad—better keep away from there if you have any regard for your family;" and to another and say, "It is the best of society, the schools are sustained, the churches are flourishing; that place is worth seeking, if the land is not quite as good."

THE SCHOOL HOUSE AND THE CHURCH.

The State of Michigan furnishes the best of proof of an advanced state of society. Go where you may in the most unfrequented settlement, and there, perhaps at some cross-roads, or in the primeval forest, the log school-house will appear. It is quite the fashion in remote places to do even better than this, to build and paint and plaster, to seat and shutter just as older places do. Those who imagine that the newer counties are without such advantages as the free school offers will be greatly surprised in traversing them to find so many well finished school-houses. At Alba, a small station in Antrim county, a school-house is now being built, veneered with brick, costing about $1,200, where a few weeks ago the tall forest trees were standing, and and near a cluster of houses still very new. This is a fair sample of the way improvements are going on in Michigan. The families are hardly settled before the school and church are planned and built. While some places are still quite destitute, and take very little interest in education, it is easy to locate where such advantages are prized. Even the earliest settlers in a new town are often much better situated as to schools than in the older places they have left, for they have all to build and can have their own way. It is only the *few* who are called to plant in this manner, and those who reap from their labors should be grateful indeed. These advantages give value to property, and one of the first things a man will do, who wants to sell out, will be to count how near he is to the church, the postoffice, and the school. A location with companionable neighbors is, too, very pleasant; and many families do not enjoy what they might if more care was used in first selections. These surroundings may not be lasting; but who knows how they may influence a life?

THE CHOICE OF A HEALTHFUL HOME.

IV. *Locate for Health.* Unfortunately for the race there is no divining rod which can point us to the region of unfailing health. Worse than this, there is no such region. Health, like society, is as the mercury in the barometer tube, ever changing with its ups and downs. Hygiene, though, will bear a good crop if it is only tested in the right place. You would not think of raising rice in a sheep pasture; neither

can you keep off "the shakes" if you inhale the miasma of a mill pond. Health is individual and local. As pertaining to ourselves individually, it is in a measure beyond control. It leaves us unbidden. The most skillful are baffled in recalling it. As local, it can be improved by the changes that we make, by the better drainage we secure, the better houses we build and the better places we select for them. Health is so far controllable, and for our present purpose *comparative*, and a matter of *choice*.

MICHIGAN A HEALTHY STATE.

Michigan as a State is healthful. The record of its soldiers in the Rebellion, for size, strength, and endurance, is noteworthy. Their attainments were not of a sickly kind. Some counties having large marshes, and which twenty years ago were not favorable to health, are entirely changed in this respect by the complete drainage which has been effected. And those counties not then much settled are proving the sanitarium of the State, and of other States. The thousands who frequent the many summer resorts, and drop their lines into the clear streams and beautiful lakes of these northern counties, let them testify. Verily they would say, "Our lines have fallen in pleasant places." We would not delude the stranger with any fancies, but let him know what others know who leave business every summer to get a sniff of delightful northern air, and go back all the better for it. We would let him know how many who reside here will say that northern Michigan has been to them the very gateway to a new life. It is not true that there is no ague at all here. The cases are very rare, though. This year there have been more than usual, perhaps owing to the extremely hot season; most of these cases are traceable to removable causes.

The selection of lands with their healthfulness especially in view is entirely practicable. Notice the surroundings. Is the spot high? Is it well drained? Is the water pure? Are there stagnant marshes or mill-ponds flooding the adjacent lands or great quantities of saw-dust in decay? What report can you get about the locality generally?

PRACTICAL EXPERIENCES IN NORTHERN MICHIGAN.

From what has been said the reader may infer that we think Michigan is a good State, and the northern part of it as good as any. That there may be no mistake, we say yes, *decidedly so!* Why should we not, after living here over twenty years and knowing every portion of it as a surveyor? The best reason we can give for seeming partiality to this region is that we are writing of what we are most familiar with. Let others do the same. These counties will have a bright future, a vigorous, hardy, and thriving population. All the grains, fruits, and vegetables common in this and most of the northern States can be raised here, and some with much success. Wheat, oats, barley, rye, peas, and buckwheat do well. Corn does not grow as large as further south, but dent corn is raised, and this year was ripe and cut up as early as August 27. It yields from 30 to 50 bushels, shelled, per acre, the latter figure being not uncommon with good culture.

Recent reports from various points in the northern counties convey such information as this:

"The agricultural element is rapidly developing this section, and many choice fields of clover are to be seen to-day, where two or three years ago stood the mighty forest. Manufacturing establishments are springing up and opening a market for our acres of choice hardwood timber, thus encouraging the settler to clear his land.

Those who became interested in early orchard planting are now enjoying the *fruits* of their labor."

"Two years and a half ago one of our young men contracted for forty acres of wild land. With nothing but his hands and an axe he has paid $7 per acre for said land, cleared twenty acres of the same, is out of debt and is building a fine residence which will be completed from cellar to garret by the first of January."

"There are many thousands of acres in hard-wood timbered land in northern Michigan yet for sale that will in a few years be valuable; and in some localities there is a good market for it now. 'Birdseye' and curly maple are quite plenty in this county and of the best quality. A few years ago it was a difficult matter to get people to believe that farming could be successfully carried on in this northern country. It was thought to be too cold, the seasons too short, to accomplish anything in that direction; but after a few years of trials it has been found to be one of the best locations for men of limited means. All kinds of crops do well and bring a good price. What it will cost a man to go west and locate land and buy teams and tools, and build a house, etc., and then perhaps only get a good crop about once in three years, will pay for 80 acres of land and leave quite a sum for improvements, buildings, etc., with a prospect of a good crop every year. The writer of this article has been here three years and has not seen a failure yet in crops."

A gentleman 77 years of age took a neglected place in this county this season, employed what help was necessary to fix up fences, plowed the land, and put in 200 bushels of seed potatoes. He will have not less than 3,000 bushels estimating by what has been dug, and can get 75 cents per bushel for them here. The place will be in good culture, and is much better to sell or to keep than it was when he commenced. It ought to be stated, however, that potatoes are higher this year than usual.

WHAT CAN BE DONE WITH LIMITED MEANS.

But you say "he had means to go on with and I have not." Let us see. Lands as good as that have sold in the past summer for $3 per acre. A young man, who had saved up a small sum from working by the month, bought 80 acres of nice hard-timbered land for $3.50 per acre, or $280, paying $100 down, the remainder to be paid in two years at 8 per cent. Keeping it one year, he will have paid about $20 in taxes and interest, and at the end of two years his land will have cost him, taxes included, about $332. But he will have had the use of it for two years, and as there were ten acres from which the wood had been sold, he will have the small brush cleared from that and put it all in crops next year. This land in any ordinary season, if planted to potatoes, ought to yield at a low estimate 120 bushels to the acre, or 1,200 bushels, and these at 25 cents per bushel, which is a low price, would be worth $300. The cost of clearing in this case is very small, and so would be the cultivation of the crop, being on new land.

Try it in another way: If this land was sown to winter wheat a low estimate would be a yield of 16 bushels to the acre or 160 bushels. (Thirty-two bushels to the acre have been harvested on new land here.) At the present price—$1.22 per bushel—this would bring $195. The wheat, being less expensive to market at a distance, might give as much profit as the other crop. Can the young man pay for his land?

Take a different case: Land was bought at $10 per acre, one-quarter down, the remainder bearing seven per cent interest. An average of 50 cords per acre of furnace wood was cut from it, and 20 cents per cord was paid for it standing, it being situated in a favorable place. Thus the land was paid for and left with only the brush and refuse timber to be cleared and could be put into spring crops.

Take still another case: A man living on a railroad at a new station, where a sawmill was being built, bought 40 acres at $12.50 per acre on the 9th of February last. The snow was then deep, but he cut ten acres and hauled the best timber to mill,

getting $3.50 per thousand. He cleared the lot in spring hurriedly, plowed it with a shovel plow among the green roots, and by June 15th had it half planted with potatoes and half sown with Hungarian grass. The potatoes had no hoeing, but by the last of August the tops entirely covered the ground. Three weeks after the potatoes were of the finest quality, with an average yield. The grass was three to three and a half feet high where it was not sown too thick, as we measured it on September 1. It will be seen by this example that some crops may be raised very soon after taking the land. A very good plan is to cut all the small timber in the fall (called "underbrushing") and in the winter dispose of the best timber if possible; if not, "fall it" in large windrows, cut the tops down well, and burn it when dry. The elm and basswood timber may be sawed into rail cuts, and when the frost is out of it in the spring split for fencing. Where cheap lumber can be had, the best fence is made of cedar posts and hemlock or pine boards. Cedar is generally abundant.

Let us look a little farther: Out on one of our railroads, less than a mile from a good school, are 80 acres of land timbered with large sugar maple, elm, and basswood, with some beech and hemlock; the soil is gravelly loam, and water is readily obtained. It can be bought at $7 per acre, one-quarter down and the remainder on time, at 7 per cent interest, or one-tenth less for cash. If you can, you had better pay all down, $504. If you buy the other way it would cost:

One-quarter down	$140 00
End first year, with interest	169 40
End second year, with interest	159 60
End third year, with interest	149 80
Cost of land	$618 80
In this time the taxes might also be	20 00
To commence with you would need	
Cash for the land	$140 00
For a good ox team	$150 or 160 00
For a wagon	$65 or 70 00
A log house, shingle roof, 2 board floors, doors and windows, need not cost over	50 00
A cow will cost	$25 or 30 00
A stable need not cost over	10 00
All farming tools needed for the first year	40 00
Total cash needed to commence with	$500 00

You have then a good start, but we have not given in this estimate the cost of clearing, of seed, and of feed and provisions. These can be offset by what the team will be able to earn, and the land to produce, as estimated before.

WAGES AND PRICES IN NORTHERN MICHIGAN.

Those who do not expect to engage in farming will not be interested in the examples given, but may wish to know whether general laborers, mechanics, and tradesmen can find a place in northern Michigan. We will let you answer. Suppose you find here, as you will, a vast country of good, low priced lands; of new settlements growing rapidly; of pine and other timber going out from here by the millions of feet every year; of lands being cleared and drained, with roads, bridges, railroads, and buildings to be built, do you think you could get a place? The very common question here, aside from talks about the weather, is, *Where can I get help?* How long this will be so depends on business conditions at large, very much, and the increase of population. In a new country improvements are constant and labor in demand; all classes find enough to do, and so may you.

Nearly all materials and supplies are higher than a few months ago; these are the present prices: Common pine lumber, $9.00 per thousand; fine common pine lumber, $12.00 per thousand; for dressed lumber add $1.00 per thousand. Flour per barrel, $7.75; pork retails at 11½c; butter, 25 to 30c; potatoes retail at 80c, from farm wagons 70c, and are unusually high; so with corn, 88c, and oats 58c, the farmers getting 70c and 50c; stove wood, dry, $1.50, and green, $1.25 per cord delivered; hay $10 to $12 per ton.

We have not attempted to tell big stories to deceive the unwary, and hope readers may not be disappointed. You have our opinion of Michigan as a State for the immigrant, from the experience of some hardships and many pleasant days spent in its frontier settlements. *Come and see!*

October 17, 1881.

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MICHIGAN AS A HOME.

A SETTLED SOCIETY.

Persons who are drawn towards Michigan by the attractions of cheap farms will find many advantages here which do not often accompany the possession of low-priced lands. Our northern counties contain thousands of acres as good in quality and as moderate in cost as those that are offered in States and territories hundreds of miles further from the seaboard, while they are all that distance nearer to the great markets of the continent. Our institutions and society are not those of a new and unorganized community, but of a rich, prosperous, and well-established State. We have over four thousand miles of railway; great public buildings for civil, educational, and benevolent purposes, including a new State capitol, and all paid for; nearly 7,000 school-houses, capable of seating nearly half a million of children, are scattered over every county in the State; two thousand churches of almost every known denomination afford conveniences for the stated ministrations of religion. The habits of the people are settled; no rankling public questions disturb their harmony; they are attached to the State and are proud of its importance. Justice is reverenced, life and property are protected, legislation is honest and public-spirited, education is generously cared for, there is a good standard of morality and intelligence, and taxes are low. The advanced civilization of the older States, and the great opportunities to labor and enterprise that are presented in the newer communities of the west, harmonize and co-operate here.

A WESTERN HOME FOR EASTERN MEN.

The New Englander or New Yorker who comes to Michigan finds himself at once in a community whose structure is precisely like that he has left. Our civil and social organizations are those to which he has been accustomed. Town and county officers have the same scope of duties and nearly the same designations. The school systems are practically identical. Public business and the administration of law are conducted on the same principles and in the same routine. Our forms are those into which he was born, and our traditions are inherited from the same source as his own. It does not take long for an eastern man to feel at home in Michigan.

FREEDOM OF CONSCIENCE AND OF SPEECH.

A fundamental principle of every American community, founded on one of the plainest rights of human nature, is absolute freedom of conscience. Every intuition of the people maintains it, and it lies at the basis of all our laws. The constitution of this State only declares the united sentiment of its population in the provisions it contains bearing upon this subject:

"The Legislature shall pass no law to prevent any person from worshiping Almighty God according to the dictates of his own conscience, or to compel any person to attend,

erect, or support any place of religious worship, or to pay tithes, taxes, or other rates for the support of any minister of the gospel or teacher of religion.

"No money shall be appropriated or drawn from the treasury for the benefit of any religious sect or society, theological or religious seminary, nor shall property belonging to the State be appropriated for any such purpose.

"The Legislature shall not diminish or enlarge the civil or political rights, privileges and capacities of any person on account of his opinion or belief concerning matters of religion.

"No law shall ever be passed to restrain or abridge the liberty of speech or of the press; but every person may freely speak, write, and publish his sentiments on all subjects, being responsible for the abuse of such right."

The spirit of these provisions is exemplified in the management of our public institutions. The first president of the State University, a devout Christian clergyman, when pressed to make appointments on denominational grounds, declared such appointments to be wrong in principle and injurious in practice. "They mistake egregiously," he maintained, "the character and ends of this institution who imagine that because it belongs to no sect or party in particular, it therefore belongs to all sects and parties conjointly and of equal right. It not only does not belong to any sect or party in particular; it belongs to no sect or party at all. The prime object of a seminary of learning is not like that of a church, to inculcate religion or perform its services, but to afford education. There is no safe guide in the appointment of professors save in the qualifications of the candidate."

RELIGION AND RELIGIOUS WORSHIP.

While all religious worship in this State is voluntary, it is nevertheless protected by law and cherished by the prevailing sentiment of the people. The sessions of the Legislature are opened by prayer. A time-honored and venerated custom requires the Governor to designate a day for annual thanksgiving, and in times of disaster and tribulation people assemble under similar appointment to invoke the Divine protection. At all great public observances, and in the commemoration of the national holiday, religious exercises are the opening proceeding. Chaplains of every denomination officiate at the State institutions. Daily prayers are offered in the chapel of the University during the academic year, but students are not coerced into attendance; and it in no wise conflicts with the sentiments of the first president of that institution, heretofore quoted, that, as reported by his successor, the late acting president, sixty of the eighty officers belonging to it are "communicants in the churches of several Christian denominations," and "every Sunday-school in the town, with one exception, is under the superintendency of some one of them."

Under a system so purely voluntary as this, religious belief and practice mark the character of our legislation and give tone to the moral sentiment of the community. The outward signs of their existence are visible in every village and hamlet. When the census of 1870 was taken there were 2,239 religious organizations in Michigan, 1,415 church edifices, and 456,226 church sittings, and, in the apportionment of the latter, 104,929 were held by the Methodist Episcopal denomination, 69,542 by the Baptists, 62,585 by Roman Catholics, 43,575 by Presbyterians, 38,355 by Congregationalists, 26,800 by Episcopalians, 23,150 by Lutherans, the remainder being divided among numerous other bodies in smaller numbers. This was in a total population of 1,184,059. The published returns of the census of 1880 are yet incomplete, but the enumeration of inhabitants showed an increase of nearly 40 per cent over 1870, and there is no doubt whatever that there was a corresponding advance in the religious institutions of the State.

POPULAR INTELLIGENCE.

In 1882 the number of circulating libraries belonging to the public school system of this State was 1,697. In some of the larger places where several schools are combined into one district these libraries have attained considerable proportions. The public library of Detroit contains about 50,000 volumes. That at Grand Rapids has 12,332 volumes. At Kalamazoo there are 8,633; at Bay City, 8,581; East Saginaw has 5,277; Adrian, 3,578; and Battle Creek, 5,014. As a means of popular education these libraries undoubtedly accomplish much good in cultivating a habit of reading. The books are drawn by any inhabitant of the district without charge, under no other restrictions than are required for their protection. The whole number of volumes reported as belonging to them in 1882 was 293,105.

Besides these there are numerous other libraries in the State, more or less public in their character, belonging to various societies and institutions. That of the University at Ann Arbor contains 41,200 volumes accessible to students; the Agricultural College has about 7,335; the Normal School nearly 2,500; the Institution for the Deaf and Dumb 2,000; the Reform School nearly 3,000; and the Public School for Dependent Children 1,200. The incorporated colleges have an aggregate of over 40,000. The books in the State Library at Lansing number nearly 40,000.

The people of Michigan are emphatically a reading community. Their local newspaper press has an exceptionally high average in the order of merit and enterprise, and is generally well supported. It has increased in numbers nearly 100 per cent in ten years, and in 1882 the entire number of periodical publications printed in the State was 443. Of these fourteen were printed in the German language, six in Dutch, two in French, one in Danish, and one in Swedish. Every village of any pretension has its newspaper, and the local interests and characteristics of nearly every section are well and faithfully represented by them. It is safe to say that in no State in the republic are there more newspaper readers in proportion to the population, or more readers who are better served with general and neighborhood news. Among the 38 States which compose the Union only seven issue as many newspapers as Michigan. Our voters as a class keep closely abreast of public affairs, and no more intelligent ballots are cast by the people of any community than those which are polled here.

A significant indication of the intelligence and commercial importance of a community is afforded by the extent of its correspondence and the amount of its expenditures for postage. The report of the Sixth Auditor of the Treasury Department for 1881 showed that in the year ending on the 30th of June previously there had been a larger disbursement for postage stamps, stamped envelopes, and postal cards in Michigan than in any other State of equal population. In New York, with its enormous commerce, the expenditure *per capita* was $1.29. Massachusetts, also the centre of great commercial as well as manufacturing and intellectual activity, expended $1.33 for each of its inhabitants. The next in magnitude to New York was Illinois, with its stirring and important city of Chicago and its connections with the entire Mississippi valley, which had paid 93 cents per head. Pennsylvania, rich in its industries and intelligence, had invested 75 cents for each member of its population, and Ohio, abounding in wealth and having eighty years' growth as a State, 72 cents. The *per capita* of expenditure for postage in Michigan, which was a wilderness when Ohio had a million of inhabitants, was precisely the same as that of the latter in 1880, and one cent higher in 1881, viz.: 73 cents, Ohio having increased six cents during the year for each member of its population, and Michigan seven. No other State or territory paid so much in the aggregate as either of these six States, except Missouri, and in Missouri the population was nearly a third greater than that of Michigan, and its expenditure six cents *per capita* less.

The census of 1880 showed that the number of inhabitants of Michigan over ten years of age who could not read was less than three per cent of the whole population, and of those who could not write less than four per cent.

THE WEATHER AND THE SEASONS.

There are few things more difficult or unsatisfactory than an attempt to describe climate and the weather, and, however much any region may be favored in these important conditions, the subject is one that will always provoke criticism and complaint. It is the inherent right of all mankind to have a growl at the weather. But it can safely be claimed for Michigan that it has a healthy climate, and one that for twelve months in the year affords a very large average of bright skies and pleasant days. In either peninsula the advance of spring is not very marked before April, but it usually progresses rapidly when it opens, and the summers in the greater part of the State are never too short for the ripening of the crops. The autumn months are the glory of the year. In the lower half of the State the severity of winter is not felt much before Christmas, and on most days, in ordinary seasons, and throughout a territory not confined to the lower half of the State, most kinds of out-of-door work go on with little interruption until nearly the close of the year. One of the most striking phenomena to people freshly arrived from eastern and other States is the great number of bright days especially observable at this period. Fogs are of rare occurrence. The average annual rain-fall at the Agricultural college during 18 years was 31.31 inches.

Snow falls earlier in the northern counties of the State than in the more southern, and usually before the heavy frosts occur. The results, in the sense most important to farmers, tend largely to equalize the length of the seasons. The grass and fall wheat, where this happens, are protected from freezing, pasturage is ready for stock as soon as the snow vanishes, and when the ground is dry enough it is fit for the plow.

A winter mean of about 25° and a summer mean of 68° Fahrenheit are about a fair average for the lower peninsula for a series of years, with an annual average of 47°. The winter mean is lower on the east side of the State than on the west, and the annual mean of the upper peninsula averages seven to nine degrees lower than it does below the Straits. The winter of 1881–2 was an exceptionally mild season, and observations taken under the directions of the State Board of Health at fifteen points, representing nearly all sections of the State, showed averages in the temperature during January as follows: Marquette, 21 degrees Fahrenheit; Escanaba, 19; Alpena, 20; Harrisville, 21; Port Huron, 24; Petoskey, 21; Traverse City, 21; Grand Haven, 28; Niles, 27; Kalamazoo, 25; Marshall, 26; Hillsdale, 25; Ann Arbor, 24; Detroit, 31; Lansing, 26. The climate of the State has been referred to in previous pages.

The navigation of the lakes is considered to be open when the breaking up of the ice will admit vessels through the Straits of Mackinac, though the river ports are always accessible sooner. During 25 years previous to 1882 the earliest passage of the Straits was on the 15th of March, in 1878, and the latest was on May 3, 1881, just 30 days later than in 1880. The usual time is during the latter half of April. On March 9 of the remarkable season of 1882, the tug Winslow passed Mackinac City westward bound. At that time there was no stationary ice in the Straits, except in the bays, to interfere with navigation. The iron steamer, Algomah, a railroad ferry, made regular trips daily throughout most of the winter between Mackinac City and St. Ignace, failing to reach the landings only when prevented by floating ice piled up by high winds along the shore, the stationary ice fields proving no permanent obstruction. The steamer Flora sailed from Detroit on March 21 for St. Ignace and Mackinac City, was stuck fast in the ice off Cheboygan for several days after breaking her

stem, and was towed into that port on the 30th. On the 3d and 4th of April vessels passed through the Straits in both directions. The dates on which the Straits were opened during twelve years preceding were as follows:

1870	April 17	1874	April 29	1878	March 15
1871	" 3	1875	" 30	1879	April 22
1872	" 28	1876	" 28	1880	April 4
1873	" 29	1877	" 18	1881	May 3

Steamers passed through the Straits during the present season (1883) as early as April 20th.

According to the custom of marine insurance companies, policies on the hulls of merchant vessels expire on the 30th of November, which is considered the close of the season.

The States of Vermont, New Hampshire, Maine, and Minnesota all lie north of Lansing the capital of Michigan, and the railroad which passes through Canandagua, Geneva, and Auburn in New York, is nearly on a line with that which intersects Owosso, St. Johns, Ionia, and Grand Rapids. The Straits of Mackinac are within a fraction of being on the same parallel of latitude with Montreal, and are more than 50 miles south of Quebec. No part of the State lies as far north as Paris.

DROUTHS AND ATMOSPHERIC DISTURBANCES.

It is well known that wooded countries are not subject to the periodical drouths which visit regions where there are no trees. There are occasional periods of dry weather experienced here, usually occuring in the late summer or fall, which prove troublesome in localities where they are most severe, and sometimes injurious to crops. An instance of this happened in 1871, at the time of the great Chicago fire, when the entire northwest suffered to a disastrous extent. In August and September of 1881 a like misfortune occurred, and the forest fires which ensued during the latter month in the counties lying between Saginaw bay and Lake Huron involved large loss of both life and property. The territory which suffered by this calamity was burned over in the fires of 1871, and the dead wood which resulted lay in the partial clearings as dry almost as tinder. The aridity of the later summer months of 1881 was phenomenal both in the United States and many parts of Europe. So far as the actual damage by drouth was concerned, Michigan was much less afflicted than some of the neighboring States—far less than some of the more remote States. But the unusual and prolonged absence of rain gave fatal opportunity to the progress of the flames which had been carelessly started by settlers who sought this method of clearing the dead timber and underbrush from their farms, and the result was a calamity altogether without precedent in the history of the State, except in the similar disaster of ten years before. But the annual drouths which are so severely felt on the great plains and elsewhere are not known in Michigan. The numerous lakes and rivers which diversify the surface of the State largely mitigate the want of sufficient rainfall when that misfortune happens, and it is seldom that it is followed by more than a local inconvenience.

Neither is the State subject to devastating floods. The large lakes do not overflow, and the spring freshets of the inland streams never reach the ruinous proportions that characterize more mountainous districts.

High winds are not uncommon in Michigan, but the State has never been the victim of such fierce and extended "blizzards" and tornadoes as those which, at intervals spread terror and destruction to the prairie country. Atmospheric disturbances are of only local and limited extent, are of infrequent occurrence, and seldom produce serious damage.

VALUE OF A TIMBERED COUNTRY.

There has been a period in the development of the western States when the heavy timber of the Michigan forests constituted an obstacle to its settlement, and the prairies of the Mississippi and Missouri valleys, by reason of their easier subjugation, were deemed more desirable by many immigrants. There is no doubt something very attractive in the idea of a field made ready by nature for the ploughshare, without the intervention of preparatory work, and the settler desirous of immediate results naturally gives weight to the suggestion it offers of diminished labor and early returns. But there are considerations that grow more urgent as experience enlarges, which impart grave importance to reasons for looking at the matter in another light. The timber which costs labor and delay to remove has become a source of income in many localities while in the process of being cleared, and above all it furnishes constant fuel to the household and fences to the fields of the farmer who has it on his lands. The expense and even suffering which are sometimes endured on prairie farms remote from supplies, for want of fuel, are unknown here. The cost of building material in a country without timber is of vital interest to new settlers who have their houses and barns to provide. The abundance of such material makes it cheap in Michigan. Every year the value of our timber becomes better appreciated. Even now tree planting is being practiced in some of the older counties on farms which a few years ago were covered with large maples and oaks, and which by a short-sighted improvidence have been suffered to become destitute. A well wooded farm is among the recommendations of thrifty agriculturists in our older counties. The judicious cutting of the untouched timber lands will provide for many wants, and one feature which ought always to be remembered should be a bountiful provision for shade in the pasture lands of the future.

The improvements which the experience of forty years has suggested in the art of clearing lands have divested that labor, to those who are informed on the subject, of much that was formidable to the early pioneers. Cross-cut saws, "cant-hooks," "skids," and the ingenious application of ropes and chains, have come to the aid of sheer muscular force, and a pair of oxen, or a single horse, contributing their strength to the power of simple and inexpensive but effective mechanical appliances, easily perform labor which once exhausted the vitality of individuals or depended upon the combined good fellowship of neighborhoods. One man with these advantages now does the work of three in the old methods, and with less fatigue, and the heaviest timber is disposed of with less labor than was required of those who cleared the lighter "openings" of some of the older counties. But even if it takes longer to make a farm in Michigan than in the prairie States, its results will abundantly compensate for the delay.

NATURE'S SUMMER RESORTS.

Michigan abounds in resorts for recreation which are available to the scantiest purses. Besides numerous points on the great lakes and their connecting rivers, which during nearly a third of the year attract multitudes of visitors from distant States as well as from this, there are more than 5,000 smaller lakes, situated in the inland counties, and in almost every section of the State. Most of these lakes are of limited area, and are partly surrounded by a marginal border of marsh land. But a large proportion of them have dry and pleasant shores, and some are more than a day's drive in circumference. The total area covered by lakes and ponds in the State is 1,225 square miles, or 784,000 acres. Several of them are connected by water

CAMPING OUT SCENE IN NORTHERN WOODS.

channels, and small steamers ply on a considerable number for the convenience and amusement of passengers. They contain fish in great abundance, and are much resorted to by fishing parties and picnics. There are some that have acquired more than a State fame by their secluded position, beautiful wooded shores and general natural attractions. It is a common thing for parties to encamp on their banks during a portion of the summer in portable tents, living in primitive fashion and finding rest and health in the recreations of their waters and the surrounding woods.

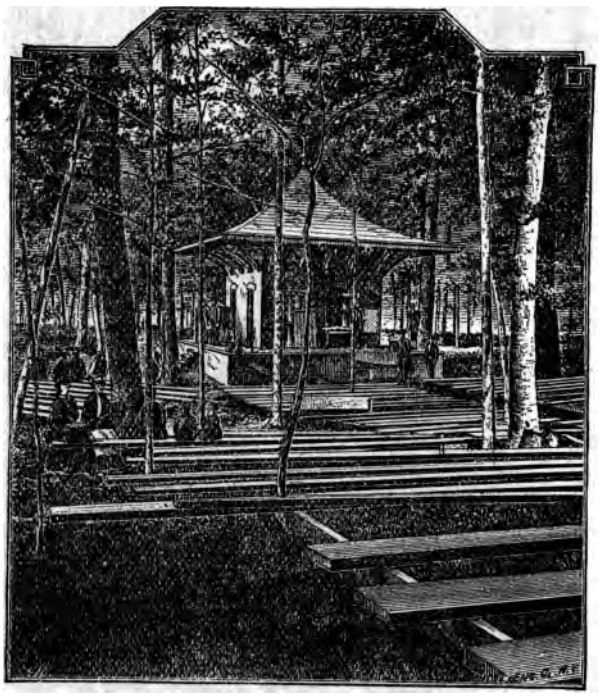
The geographer of the United States census enumerates among the principal inland lakes of the country those in Michigan which are mentioned below, giving also their measurements:

The Principal Lakes of Michigan.

PRINCIPAL LAKES.	COUNTY.	ACRES.
Mullet	Cheboygan	28,800
Manistique	Mackinac	25,600
Torch	Antrim	21,760
Houghton	Roscommon	21,120
Burt	Cheboygan	19,200
Long	Alpena and Presque Isle	15,360
Agogebic	Ontonagon	13,440
Cheboygan	Cheboygan and Presque Isle	13,440
Portage	Houghton	13,440
Cass	Oakland	12,800
Higgins	Roscommon	10,880
Elk	Antrim	9,600

Other large lakes are Hubbard, in Alcona county; Otsego, in Otsego; Gun, in Barry; Crystal, in Benzie; Indian, in Schoolcraft; Michigamme, in Marquette; and Muskegon, in Muskegon.

The island of Mackinac, situated in the Straits of that name and washed by the waters of Lakes Huron and Michigan, is the resort of thousands of people yearly from all parts of the Union. It was the site of a Jesuit mission before the foundation of Detroit, and the legends of the Indians made it a home for their gods long anterior to the advent of the white man. The purity of its atmosphere and its general salubrity were widely recognized more than a century ago. The commanding altitude of its heights and promontories, some of them rising to an elevation of 300 feet, furnishes magnificent outlooks over the surrounding waters, which are so transparent that small articles can be discerned many feet below their surface. About 1,000 acres of this stately spot have been dedicated by Congress to the purposes of a National Park, and neither private speculation nor business enterprise can encroach upon its public character. Steamboats passing between Chicago and the ports of the upper and lower lakes touch at Mackinac daily during the season of navigation, and regular lines run thither also from Detroit.



SPEAKER'S STAND, CAMP-MEETING GROUNDS, BAY VIEW.

Marquette on Lake Superior and Sault Ste. Marie on the straits of that name are also favorite resorts for people of more southern latitudes during the heats of summer, both for their bracing atmosphere and for the amusement of fishing. One of the charms of a journey to these points as well as to Mackinac is the delightful sail on the fine steamers which ply among those engaged in the navigation of the lakes. To those who prefer land travel, however, both Marquette and Mackinac are now practically accessible by rail.

ROBINSON'S FOLLY—MACKINAC.

On the northern shores of the lower peninsula are also numerous points which, scarcely known a few years ago, have become the annual attractions of people from distances of hundreds of miles. All along the shores of Grand and Little Traverse bays villages have sprung up which are filled during the summer months with transient colonists. At Bay View, near Petoskey, the Methodist denomination owns and controls several hundred acres of land, embowered in the forest, upon which have been erected about a hundred residences, occupied during three months of each season by an average population of one thousand. Some of these cottages are very picturesque, and a camp-meeting is held among them every year, which brings together great numbers of people. A few miles distant the Presbyterians have a rural retreat, while at Charlexoix there are a large number of commodious summer residences which are favored by Baptists but not controlled by any denomination. Friends and neighbors belonging to the southern counties of the State frequently buy adjacent property at various points in this region, and carry their accustomed society into their summer sojourning, where boating, fishing, freedom from business cares and simple living create new life. There are numerous points on Lakes Huron and Michigan and on the St. Clair and Detroit rivers which are also frequented in the season by visitors. Many families come to some of these places year after year from inland States and neighborhoods to enjoy the health-giving air of the lakes.

Not the least among the features which attach its people to Michigan are the great abundance, simplicity, cheapness, and comfort of its summer resorts.

MINERAL WELLS.

The medicinal virtues of mineral waters are attested by many generations of invalids who have found relief at the spas of Europe or the healing springs of this continent. Chronic diseases, that prove invincible to professional skill often yield to the influences of these natural remedies, which are potent in stimulating torpid organs to normal action, and in restoring tone to over-taxed systems. When due regard has been given to the value of the rest and of the change of scene, air, diet, and habits, which attend a sojourn at such resorts, the fact remains that the use of the waters is frequently and directly followed by recuperative results. Absorbed in the bath-tub or taken as a beverage, they arouse the vital forces of the body to new action, and produce alterative effects which expel disease and revive the flagging vigor of the system. Springs containing solutions of mineral elements abound in Michigan, and at several points artesian wells have been sunk into apparently inexhaustible reservoirs of water strongly impregnated with these natural medicinal agents.

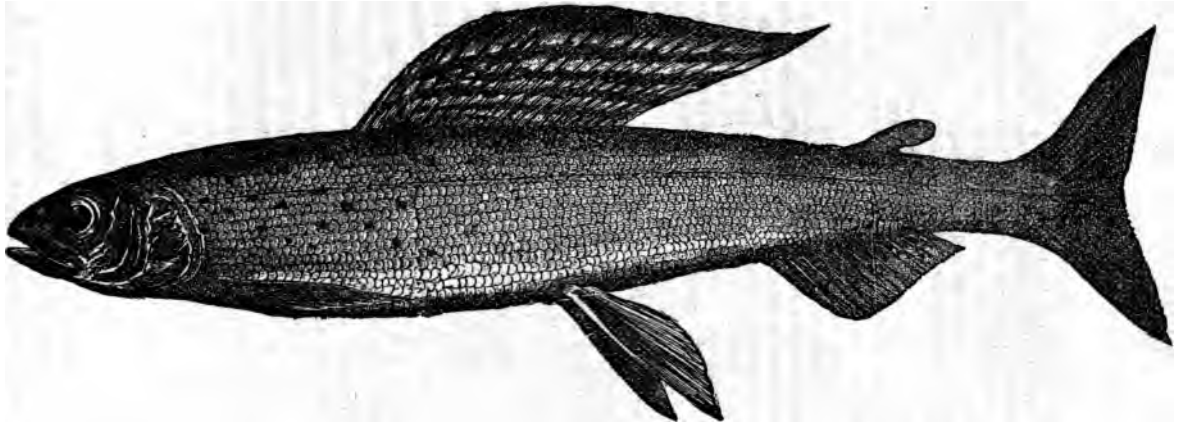
Experience has shown that the mineral waters of Michigan are useful in the treatment of rheumatism and kindred disorders, of paralysis in its diverse forms, of dyspepsia and other nervous troubles, of catarrhal affections of any part of the system, of chronic diseases of the liver and kidneys, and of the general debility following prostrating sickness. The best known of the mineral springs of Michigan are these: At St. Louis, in Gratiot county, yielding an alkaline water; at Mt. Clemens, Lansing, Spring Lake, Three Rivers, Fruitport, and St. Clair, producing saline waters; at Wyandotte, Alpena, and Springwells (below Detroit), yielding sulphur waters; at Eaton Rapids, Grand Rapids, Leslie, Grand Ledge, and Hubbardston, giving water strongly saturated with the salts of lime; a chalybeate spring at Owosso; and a well at Midland producing water with peculiar purgative properties. Large sanitariums for the treatment of patients, with boarding houses or hotels attached, have been erected at Mt. Clemens, Eaton Rapids, St. Louis, Wyandotte, Spring Lake, and a few

other points. The usual charges at such resorts range from $1.50 to $3 per day for board at the hotels, with lower rates at private boarding houses, and from 50 cents to $1 per bath. Large quantities of these waters are shipped away in bottles and casks.

GAME AND WILD BERRIES.

Game, still very abundant in Michigan, must be reckoned among its important natural resources. Hares, rabbits, and squirrels are numerous in the settled as well as in the newer counties. The favorite bird, known to naturalists as the colin but commonly called the quail, is found in all the older parts of the State; it comes with civilization, and holds a place midway between the domestic and the wild fowl. That it thrives in this latitude and is likely to abide here permanently is shown by the fact that during the fall of 1881 sportsmen found it more abundant than in any immediately preceding year despite its very vigorous hunting in the past. Michigan is peculiarly the American home of the partridge or pheasant (ruffed grouse), so highly prized by epicures, and the prairie chicken (pinnated grouse) is found within its borders. The list of feathered game common in the State also includes the wild turkey, woodcock, snipe, and plover, and enormous flocks of pigeons annually make their nestings in the northern counties, and are there killed or captured in vast numbers. The lakes and rivers about and in Michigan abound both in web-footed fowls and edible fishes. Swans, wild geese, and ducks of all varieties and in countless numbers feed upon their surface. The statistics of the fishing interest of the great lakes have been already given. The interior waters of both peninsulas are well stocked with trout, bass, pickerel, perch, and other food fishes, while the only streams on this continent in which the grayling—that delight of European anglers—has been found are the Au Sable, Manistee, and a few neighboring rivers in Michigan. The Jordan and the Boardman have won a national reputation from the abundance of their speckled trout. North of the valleys of the Grand and Saginaw the forests yet shelter vast quantities of large game. Black bears are still quite numerous. The American deer, a noble specimen of the family of red deer, is so common that it is estimated on excellent authority that not less than 70,000 of these fine animals were killed in this State during the single season of 1880. The law of 1881 prohibiting the exportation of game from Michigan greatly reduced these figures during the season of that year, and promises to prove useful in protecting the deer from speedy destruction and in preserving this valuable stock of food for the people of the State. The fur trade of Michigan is still an important item in its commerce, and the beaver, otter, fox, mink, muskrat, and raccoon are trapped in large numbers, and their skins command a quick sale. The fiercer varieties of animals, however, are practically extinct. The black bear, except at bay, is no more dangerous here than the deer. Wild berries grow luxuriantly in all parts of the State, the most prolific being the blackberry, raspberryt cranberry, and whortleberry. Nut-bearing trees are also common in its forests, and wild honey in large quantities rewards the search of the bee-hunter.

The practical value to the settler of the vast stock of natural food thus briefly described is two-fold. With his rod or gun he can provide his own table with substantial food. Again, he can always find a ready market at good prices for such game as he does not consume, and thus make his skill in marksmanship or in angling contribute to his income. The pursuit of game is open to all upon equal terms, and the laws relating to this subject are limited to protecting game from extinction by killing during the breeding season or by wholesale slaughter. Within these reasonable



MICHIGAN GRAYLING.

restrictions, and with due respect also to the rights of private property, any inhabitant of the newer districts of Michigan can make the forests and streams about his home contribute liberally to his larder and his purse. Nature there places within the easy reach of the poorest settler a wider range of selection from the choicest varieties of game than is open to many of the wealthy epicures of the old continent.

MICHIGAN HOMES.

The large proportion of people who own the homes they live in is a peculiar characteristic of American communities, which is made more conspicuous by contrast with other lands. Michigan is a particularly forcible illustration of this feature. It is a custom which propagates by example, and the social, political, and business conditions of the State all encourage it. A rented farm is scarcely known. Most of the dwellings in our cities and villages belong to mechanics and workingmen who are their own tenants. Among those who are thrifty it has become a habit to invest the first savings in a house. There is choice enough among the building lots of every place to meet almost every pecuniary condition, and a few hundred dollars judiciously used will secure a comfortable home in any town in the State. A practical farmer who has any means at all can with even greater facility establish himself on land of his own, with a reasonable certainty, if he deserves it, of financial independence, increasing comforts, a respected life, and a good outlook for his children. It is the workingmen of this class, the men who respect labor and owe to it, under the blessings of Providence, all their success, who control the political affairs of the State; and it was the same class who, thirty years ago, declared their respect for the sanctity of a home, by incorporating in its written constitution these provisions against the contingencies of misfortune:

"Every homestead of not exceeding forty acres of land, and the dwelling-house thereon, and the appurtenances to be selected by the owner thereof, and not included in any town plat, city, or village; or instead thereof, at the option of the owner, any lot in any city, village or recorded town plat, or such parts of lots as shall be equal thereto, and the dwelling-house thereon, and its appurtenances, owned and occupied by any resident of the State, not exceeding in value fifteen hundred dollars, shall be exempt from forced sale on execution or any other final process from a court, for any debt contracted after the adoption of this Constitution. Such exemption shall not extend to any mortgage thereon, lawfully obtained; but such mortgage or other alienation of such land by the owner thereof, if a married man, shall not be valid without the signature of the wife to the same.

"The homestead of a family, after the death of the owner thereof, shall be exempt from the payment of his debts contracted after the adoption of this Constitution, in all cases, during the minority of his children.

"If the owner of a homestead die, leaving a widow but no children, the same shall be exempt, and the rents and profits thereof shall accrue to her benefit during the time of her widowhood, unless she be the owner of a homestead in her own right."

WAGES OF LABOR AND COST OF LIVING.

There was a material advance in the wages of some kinds of skilled labor during 1881, and an active demand for mechanics prevailed in its later months, especially for those classes employed in the construction of buildings. Probably there never was a period in the history of the State when so much progress was made in the erection

of dwellings and business structures. The general prosperity of the country and the rapid growth of the State combined to create this condition. It was not confined to the large towns and business centers, many of which made extensive and costly architectural additions, nor to mills and manufactories, which multiplied in every section of the State, but it extended into districts that are strictly rural. The improvements in farm buildings within the year were very marked.

It was also an exceptionally expensive year for housekeepers. The advance in many articles of household consumption, especially in the products of the soil and the stockyard, was particularly noticeable during the fall months.

The tables which follow were compiled from figures obtained from intelligent and reputable citizens of the places mentioned therein. A uniform request was made to each to furnish the *average retail prices* of the articles named, and the *average wages* of the kinds of labor specified, for the year 1881. In each case the rate is somewhat higher than that which usually prevails. At the time most of the statistics were gathered the prices of food and of wages had reached the highest figures for the year, and it is probable that in estimating the average this circumstance may have been less carefully considered in some localities than in others, which would account for a few apparent disparities. One or two points are omitted in the tables from which efforts to obtain information proved unavailing. But a clear and intelligent idea of the value of labor and the cost of leading articles of food in this State may be gathered from what follows, and fair conclusions may be drawn from it indicating the prevailing prices of farm, garden, and barnyard products. The places designated represent fifteeen important business centers situated respectively in the counties of Alpena, Calhoun, Cheboygan, Genesee, Grand Traverse, Ingham, Jackson, Kent, Lenawee, Manistee, Muskegon, Mecosta, Saginaw, Sanilac, and Wayne, and a glance at the map will show their geographical relations to the rest of the State.

WAGES, ETC., IN THE UPPER PENINSULA.

A letter from the Assistant Commissioner of Mineral Statistics, dated at Marquette in September, 1881, furnished information concerning that portion of the State as follows:

"Miners receive per day of ten hours from $2 to $2.25. They work one week day-shift, and one week night-shift, alternating. Miners working on contract make $2.50 to $3.50 per day. Prices are about the same the year round. Furnace men get $2 to $2.25 per day; the founder $1,500 to $1,800 per year. Surface laborers at the mines get $1.75 to $2.00 per day; laborers on the railroads $1.80 per day; teams $5 per day; farm hands $1.50 to $1.75 per day, exclusive of board. Carpenters, painters, etc., receive $3 per day; masons $4 per day; wood choppers $1 per cord. The demand for labor is good, fully equal to and rather in excess of the supply, especially for experienced miners.

"The board of single men costs them $18 per month. The cost of living is a quarter to a third more than in lower Michigan.

"The wages in the copper regions average about the same as here.

"Upper Michigan must ever be a field which will require the labor of a large number of men at remunerative wages, varying of course with t e demand for iron and copper, but the country is improving rapidly, and other fields than mining will require labor in the future to a much greater extent than has prevailed in the past."

Average Wages of Labor at the

OCCUPATIONS.	Adrian.	Alpena.	Battle Creek.	Big Rapids.	Cheboygan.	Detroit.
Carpenters and joiners, per day	$2 00@3 00	$2 50@4 00	$1 75	$2 00@2 25	$1 75@2 50	$2 00@2 50
Masons, per day	2 50@3 00	3 00@3 50	2 50	2 00@3 00	2 50@3 00	2 50@3 00
Bricklayers, per day	2 50@3 00	3 00@3 50	2 50	2 50@3 50	2 50@3 00	2 50@3 00
Plasterers, per day	2 00@2 50	3 00@3 50	2 50	2 00@3 00	2 50@3 00	2 50@3 00
House painters, per day	2 00@2 50	3 00@3 50	1 75	2 00@2 25	2 00@3 00	1 50@2 25
Blacksmiths, per day	1 50@1 75	2 00@2 50	2 00	1 50@2 50	2 00@2 50	1 50@2 50
Shoemakers, per day	1 50@1 75	----------	1 75	1 75@2 25	----------	1 25@1 75
Coopers, per day	1 25@1 50	----------	----------	2 00@2 50	1 50@2 00	1 50@2 25
Millwrights, per day	2 00@3 50	3 00@4 00	----------	3 00@3 50	2 50@5 00	2 50@3 50
Mill hands, per day	1 50@2 00	1 50@1 75	----------	2 00@3 50	$1 50	1 50@2 00
Brickmakers, per day	1 25@1 50	----------	----------	1 50@2 00	----------	1 75@2 00
Teamsters, per day	----------	----------	1 25	$1 50	1 50	1 00@1 50
Choppers, per day	$1 00	----------	1 00	1 00	1 50	----------
Teams—2 horses and driver, per day	2 50@3 00	3 50@4 00	2 75	4 00	2 50@3 00	3 00@3 50
Laborers, porters, etc., per day	1 00@1 50	1 25@1 75	1 25	1 50@1 75	$1 50	1 00@1 50
Farm hands, per month with board	$16@20 00	$20@22 00	15 00	$16@25 00	$20@24 00	----------
Female domestics, per week with board	$1 50@2 50	$2 00@3 00	2 25	----------	$1 50@2 50	1 50@3 00

Explanations are given with some of the reports from which this compilation is made that cannot be tabulated. The following figures are added: Adrian, teamsters $16 to $20 per month and board; Alpena, teamsters $22 to $26 a month and board, choppers the same; Manistee, teamsters $26 to $30 a month and board, choppers $22 to $26 a month and board, teams of two horses $60 a month and board; Port Austin, teamsters

Average Retail Prices of Articles of Household

PRODUCE, ETC.	Adrian.	Alpena.	Battle Creek.	Big Rapids.	Cheboygan.	Detroit.
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
Beef—Best roast and steak, per lb	10@12½	11@15	12½	8@10	15	12@15
Boiling pieces, per lb	5@ 7	8@10	6	5@ 8	12½	6@ 8
Soup pieces, per lb	5	5@ 6	5	5@ 8	10	5@ 7
Corned, per lb	5	7@ 9	7	5@ 8	8	8@10
Veal—Forequarters, per lb	8	10@12	8	6	15	8@10
Hindquarters, per lb	10	10@14	10	8	15	10@12
Mutton—Forequarters, per lb	6	10@12	9	5@ 6	15	8@10
Hindquarters, per lb	8	12@15	10	6@ 8	15	10@12
Soup pieces, per lb	4	7@ 8	6	4@ 5	10	6@ 7
Pork—Fresh, per lb	10	11@14	10	5@ 8	12½	10@12
Salt, per lb	10@12	9@11	12½	7@12	11	10@12
Ham, per lb	10@12½	12@15	12½	11@14	14	14@18
Shoulder, per lb	6@ 8	10@11	8	7@13	10	8@10
Sausage, per lb	10	12@14	12½	10@12½	12½	10@12½
Fresh fish, per lb	4@ 8	4@ 6	8@10	6	----------	7@10
Chickens, per lb	8	10@15	10	----------	15	10@12
Lard, per lb	10	11@15	15	10@15	15	13@15
Butter, per lb	20	22@30	20	14@35	30@35	25@30
Cheese, per lb	12	15@18	17	11@18	15	15@18
Coffee—Rio, per lb	14@20	15@25	18	15@20	20@25	15@18
Tea—Young Hyson, per lb	50@85	25@60	50	30@80	25@60	50@80
Japan, per lb	40@75	25@60	50	30@80	25@60	45@60
Brown Sugar, per lb	7½@10	5@10	9	8@ 9	10	8½@ 9
Coffee sugar, per lb	10@11	10@12	10	9@11	11	9½@10½
Potatoes, per bushel	$1 00@1 10	50@75	75	40@80	80	80@$1 00
Beans, per quart	8@12	----------	10	8@10	12½	8@12
Milk, per quart	4@ 5	6@ 8	5	5@ 7	6@ 8	6@ 7
Eggs, per doz	15	18@22	14	12@25	20@30	18@23
Wood, per cord	$3 50@5 50	$2 50@3 00	----------	$1 00@2 50	$2 50@3 00	$4 00@6 50
Board for single men, per week	$3 00@4 00	$3 50@4 00	$2 50	$3 00@4 00	$3 50@5 00	$3 50@5 00

The important article of flour, not included in the foregoing table, has a staple value which is not much affected by the location of business centres in States where transportation is as abundant as it is here. There were unusual fluctuations, however, in the markets of 1881, and like other products it bore at the close more than average

Places Named for the Year 1881.

Flint.	Grand Rapids.	Jackson.	Lansing.	Manistee.	Muskegon.	Port Austin.	Saginaw and E. Saginaw.	Traverse City.
$1 75@2 00	$1 75@2 75	$2 00@3 00	$2 00@2 25	$2 25@3 00	$2 00@2 50	$2 00@3 00	$2 00@2 50	$1 50@2 25
2 50@3 00	2 50@3 50	1 50@2 50	3 00@3 50	2 25@3 00	2 00@3 50	2 50@3 75	2 00@3 00	2 50@3 00
2 50@3 00	2 50@3 50	2 00@4 00	3 00@3 50	2 50@3 50	2 50@3 50	2 25@3 50	2 00@3 50	2 50@3 00
2 50@3 00	2 50@3 50	$3 00	3 00@3 50	2 25@3 00	2 50@3 50	3 00@4 00	2 00@3 00	2 50@3 00
1 75@2 00	1 50@2 25	2 00@2 50	2 00@2 50	2 50@3 00	2 50@3 00	2 50@3 50	1 75@2 25	2 00@2 50
2 00@2 50	2 25@2 75	2 00@3 00	1 50@2 00	1 75@2 50	----------	1 75@2 75	1 50@2 50	2 00@2 25
1 50@1 75	1 75@2 25	2 00@2 50	1 75@2 00	$2 00	----------	2 00@3 00	1 75@2 50	1 50@1 75
1 50@2 00	1 50@2 00	2 00@2 50	1 75@2 00	----------	----------	----------	1 50@2 50	1 60@2 00
$3 00	3 00@4 00	2 00@3 00	3 00@3 50	4 00@5 00	2 25@2 50	3 00@4 00	$2 50	2 50@3 00
1 25@1 50	1 75@3 50	----------	1 50@2 00	1 50@2 00	1 50@2 00	2 50@3 00	1 50@2 00	1 45@3 00
1 50@2 50	1 00@1 50	1 25@2 25	1 25@1 75	$2 00	----------	2 00@2 50	1 25@1 75	1 50@1 75
1 25@1 50	1 00@1 50	1 00@1 50	1 00@1 25	----------	1 50@2 00	----------	1 50@1 75	$1 45
----------	1 50@2 00	1 50@2 00	1 00@1 50	----------	----------	----------	$1 50	1 45@1 60
$3 00	2 75@3 00	$3 00	2 50@3 00	----------	3 50@4 00	3 50@4 00	3 00@3 50	$3 00
1 25@1 50	$1 50	1 50	1 25@1 75	1 50	1 50@1 75	1 12½@1 50	$1 50	1 25@1 75
$15@17 00	18 00	$16@20 00	$15@20 00	$20 00	$20@25 00	$18 00	$20 00	$20@26 00
$2 00@2 50	3 00	$2 50@3 00	$2 00@3 00	2 50@3 50	$2 50@3 00	$2 00@2 50	2 00@4 00	2 00@3 00

$18 a month and board, coopers 8 cents per barrel, choppers 50 cents to 75 cents per cord. Where the lowest figures per day to choppers are mentioned board is added. Lumbermen received from $25 to $28 per month and board on the lower peninsula, and something more on the upper.

Consumption at the same Places in 1881.

Flint.	Grand Rapids.	Jackson.	Lansing.	Manistee.	Muskegon.	Port Austin.	Saginaw and E. Saginaw.	Traverse City.
Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
12@13	14@16	10@12	12½@14	12½@15	12@16	11@12½	11@14	10@13
5@ 6	6@ 8	7@10	6@ 8	9@12½	6@ 8	8@10	7@ 9	8@10
5@ 6	4@ 6	7@ 8	6@ 8	8	5@ 7	6@ 8	----------	7@ 9
6@ 8	6@10	7@10	5@10	8	5@10	9@10	7@ 9	8@10
7@ 8	8@ 9	8@12	5@10	12½	8@10	12½	8@11	7@ 9
9@10	10@12½	15	10@15	12½	12@14	12½	12½	10@12
7@ 8	7@ 8	8@12	5@10	12½@15	7@10	12½	7@10	7@ 9
9@10	10@12½	12	10@15	12½@15	12@14	12½	11@12½	10@12
5@ 6	5@ 6	8	4@ 6	9@12	----------	10	7	6@ 9
11@13	12½	12	10@12	12@15	10@12½	10	11@14	8@10
11@13	10@12½	10@12	10@12½	12½	10@12	12½@15	9	9@11
14@16	12½@14	15	12@15	12½@15	12½@14	16@18	12½	14@17
11@13	8@10	10	6@ 9	12½	9@12	12½	8	9@12
12	10@12½	12	10@12½	12½	10@12½	10	12½	7@10
6@ 9	8@20	5@10	8@10	----------	----------	----------	----------	5@ 6
10@12	10@16	10	8@12½	12½	10@18	----------	15	9@11
15	14@16	14@15	12@15	12½	12½@15	12½	12	14@16
15@20	25@35	25@30	20@25	22@35	20@30	25	20	20@30
12@16	16@18	18	13@18	----------	14@16	12½@16	13	16@20
15@20	20@30	15@28	16@25	20	20@25	30	17	18@22
25@75	40@80	50@75	50@75	40@60	50@90	35@60	35@50	40@60
25@75	35@70	30@55	30@75	30@40	50@75	40@75	35@55	34@56
8@ 9	9@10	8@ 9	8@10	8	8@ 9	10@11	8	8@ 9½
10@10½	10@11	10	10@11	10	10@11	11@12½	9½	10½@11
40@80	80@$1	$1 00@1 10	80@$1	65	60@$1 00	$1 00	60	50@80
5@ 6	8@10	12	8@12	8@10	10@12	12	8	8@10
6@ 8	5@ 6	6	5@ 7	6	----------	8	5	5@ 6
13@14	18@22	18@28	10@28	20	12½@25	12½@15	15	14@20
----------	----------	$2 00@3 00	$1 50@2 50	$2 50@4 00	----------	$1 00@1 50	$2 00@3 00	$2 50@3 00
$3 00@3 50	$3 00@4 00	3 00@5 00	3 00@5 00	3 50@4 00	$3 50@4 00	$3 00	3 50@4 50	3 00@5 00

prices. Brands representing a good grade for household purposes ranged during the year from $5 to $7 50 per barrel of 196 pounds, and it was sold between those figures throughout the State generally in retail lots, or from two and a half to three and three-quarters cents per pound.

INFORMATION FOR ALIEN IMMIGRANTS.

CUSTOMS DUTIES OF THE UNITED STATES.

Immigrants to the United States may bring with them the following articles without being required to pay duties thereon:

Books and "household effects," used abroad by them not less than one year, and not intended for any other persons or for sale. [The words "household effects" include furniture, family pictures, pianos and similar musical instruments, etc.]

Wearing apparel in actual use, and other "personal effects." [By "personal effects" are meant jewelry, ornaments worn on the person, and like articles.]

The tools, implements, instruments, and professional books of the immigrant's trade, occupation, or employment. This does not include "machinery or articles imported for use in any manufacturing establishment, or for sale."

Teams (with harness and wagon) actually used by the immigrant in transporting his property over some part of the journey *between his foreign residence and the United States.* Such use of the team for even a short distance is sufficient, if that distance is actually part of the journey.

All the baggage of immigrants is examined by the customs authorities of the United States at the frontier. If the immigrant does not accompany his luggage he should not fail to go to the office of the American Consul nearest his point of departure and obtain an owner's certificate, and comply with certain forms whose nature he can learn there.

The customs authorities of the United States are instructed to deal liberally with immigrants in construing the laws admitting their property free of duty.

UNITED STATES CITIZENSHIP.

Any alien may become a citizen of the United States by complying with the following conditions:

1. He must first declare his intention to become a citizen and to renounce his foreign allegiance before the clerk of some court of record. He may do this at any time after his arrival in the United States, and this is all that is necssary to enable him to take up a homestead upon United States land.

After a continued residence of five years in the United States, and at least two years after his declaration of intention, he may become a citizen by taking the required oath in open court of record in any State or territory in which he has lived for one year preceding.

2. Any alien of the age of 21 years who has served one year or more in the United States army (regular or volunteer), and has been honorably discharged, can become a citizen by showing these facts and proving that he has resided in the United States for one year preceding his application.

3. Any alien who has resided continuously in the United States for five years, three years at least of which must have been during his minority, may become a citizen of the United States without any previous declaration of intention.

4. The minor children of naturalized aliens are, if residents of the United States, citizens thereof.

5. The widow and children of any alien, who dies after the declaration of intention but before full naturalization, are considered citizens of the United States.

6. Any alien who, having declared his intention to become a citizen, shall serve three years on any merchant vessel of the United States may at the end of that time become a citizen by application to the clerk of any court of record and the production of his certificate of discharge and good conduct.

VOTING IN MICHIGAN.

Voting in Michigan is regulated by the State, subject to that provision of the constitution of the United States which forbids any State from "denying or abridging" the right of citizens to vote "on account of race, color, or previous condition of servitude." All voting is done by secret ballot, and the right to vote is conferred on two classes: 1. Males over 21 years of age who are citizens (that is, natives or naturalized aliens), and have resided in the State three months and in any township or ward ten days preceding any given election. 2. Male aliens of twenty-one not yet fully naturalized, who have resided in the State two years and six months, have declared their intentions to become United States citizens six months preceding any election, and have lived in any township or ward ten days preceding such election.

GENERAL SUGGESTIONS.

The best time for immigrants to come to Michigan is in the spring or early summer. The mild months of the year are those in which new comers can most comfortably select their homes and most easily become accustomed to a strange climate.

No one who has a family dependent upon him should start without some money beyond the amount necessary for the journey. Young and single men can get along with very little if they are willing to work, but no one should come in an absolutely penniless condition, unless through friends here he has secured employment before leaving his home.

The advice of trustworthy acquaintances already located in Michigan will be of great value to any immigrant, and those proposing to come to this State who have friends already here are urged to correspond with them before starting.

The immigrant should plan his journey at its outset, and should buy his tickets through to his destination if possible. If he brings any large sum of money it should be in the form of drafts, and care should be taken to get them paid either by the house upon which they are drawn or at some established banking house. Money brought on the person should be in gold coin. Immigrants should not bring bulky furniture, farming implements, or stock; it is more economical to sell off such articles and buy anew here. Clothing, bedding, mechanics' tools for actual use, and household cutlery may be brought, and all such articles are passed without duties by the customs officers of the United States. All luggage should be closely packed, strongly corded, and plainly marked.

On the journey immigrants should carefully observe the instructions of the officers of steamship and railroad lines, who can be distinguished by their uniforms. In the

large American cities the policemen also wear uniforms, and will furnish any information on application. Too much care cannot be taken in avoiding swindlers, and no prudent man will tempt thieves by publicly exhibiting valuables or money. A basket of portable food will be found exceedingly convenient on the railroads.

Michigan offers especial attractions to farmers. They can secure homes cheaply, are their own employers, and can always find markets for their crops. Mechanics, miners, and skilled workmen are also needed, and unskilled laborers can usually secure work without much delay. Clerks, salesmen, and professional men will find it much more difficult to obtain employment. A good plan for an immigrant is to accept the first kind of labor that offers itself on reaching Michigan, and then take time to look about him before locating permanently.

A DESCRIPTION OF THE STATE OF MICHIGAN BY COUNTIES.

ALCONA COUNTY.

Alcona county was organized in 1869. It is bounded on the north by Alpena, on the east by Lake Huron, on the south by Iosco, and on the west by Oscoda. It has an area of 720 square miles, and had a population in 1880 of 3,110. Harrisville, a town of 700 inhabitants, situated in the eastern part of the county on Lake Huron, is the county seat. The surface of the county is comparatively level, with the exception of the townships along the lake shore, which are more or less rolling. Swamps are scattered here and there throughout the county, but most of them have their origin in springs and can be easily reclaimed. In the western portion of the county are found large tracts of sandy land, much of which is believed to have a soil suitable for agricultural purposes.

The county is well watered by the Pine, Au Sable, and Hubbard rivers and their tributaries, ample water power for all milling purposes being found in a number of localities. The soil of the eastern townships is generally a heavy clay with a clay subsoil; while that of the "plains" is either a sandy loam or a clear sand. The timber consists of white and yellow pine, hemlock, beech, maple, cedar, oak, and some black birch. The older portions of the county produce good crops of winter and spring wheat, oats, barley, etc., in fact, few counties can show a larger yield to the acre, as wheat has been produced yielding an average of 45 bushels to the acre. Peas and all kinds of vegetables are also grown in great abundance. The experiments in fruit raising in this comparatively new county have been uniformly successful. Young orchards present a thrifty appearance, and the lighter fruits will, no doubt, amply repay those who attempt their cultivation. Berries are indigenous to the soil, and as a rule yield bountifully. The cost of clearing the heavier timbered lands will average about $18 per acre. There are good wood markets at various points, $2.50 being the uniform price for cordwood.

On May 1st, 1883, there were subject to entry 9,000 acres of government, 9,801 acres of State swamp, 6,483 acres of primary school, and 22,970 acres of agricultural college land. A State road runs west from Harrisville 36 miles, connecting that town with the Mackinaw division of the Michigan Central railroad. Lands are accessible by good roads throughout the entire county. The climate is equable, the winters beginning about Dec. 1st, and continuing steadily up to March 15th. The snow-fall averages about eight inches in depth, the ground freezing but little. Ploughing is usually begun by April 1st, and seeding by May 1st. The schools of the county are comparatively few, but are well sustained. The health of the inhabitants has been generally good, the invigorating influence of the lake breeze being felt to a remarkable extent, particularly during the summer months. Every branch of the lumber trade is carried on with success. Labor is in good demand, wages ranging from $28 to $38 per month with board. Improved land can be had at prices ranging from $10 to $25 per acre. Unimproved lands are proportionately less. A railroad is projected from Standish, on the Mackinac division of the Michigan Central, to Alpena, which will extend along the eastern border of the county. Harrisville already enjoys an extensive lake commerce. Alcona county, with its cheap lands and productive soil, offers every inducement to the man with limited means, and a good class of immigrants would receive a hearty welcome from its inhabitants.

ALLEGAN COUNTY.

Allegan county was organized in 1835. It is bounded on the north by Ottawa and Kent, on the east by Barry, on the south by Van Buren and Kalamazoo, and on the west by Lake Michigan. It has an area of 828 square miles, and had a popula-

tion in 1880 of 37,806. Allegan, a city of 2,500 inhabitants, situated near the geographical center of the county, is the county seat. A few of the townships in the eastern and western portions of the county have a comparatively level surface, while the remaining townships present an undulatory appearance. There are several large swamps along the Black and Gun rivers, also smaller tracts of marsh land scattered here and there over the county, all of which are reclaimable. The county is well watered by the Kalamazoo, Black, and Gun rivers, also by a number of inland lakes. Plenty of available water power is to be found along the streams, particularly on the Kalamazoo between Allegan and the county line.

Almost every variety of soil is found throughout the county, and the large crops raised speak well for its richness. Originally there were large bodies of pine along the rivers, but the only remaining forests consist of beech, maple, elm, hemlock, and oak. Wheat is the great staple, although large crops of the other cereals are annually raised. The reclaimed swamp lands are especially adapted to onion raising. Hay, cabbages, and celery are also marketed in large quantities from these low lands. The entire coast line of Western Michigan is noted for its productiveness of fruit, and Allegan is not behind her sister counties in this respect. The peach is the most successful fruit crop, followed by the apple and smaller fruits. Berries, in particular, are extensively cultivated, chiefly for the Chicago market. The cost of clearing averages from $10 to $15 per acre, and the wood product finds a ready market at prices ranging from $2 to $2.50 per cord. There were subject to entry on May 1st, 1883, 308 acres of State swamp, and 2,505 acres of primary school land. Unimproved lands owned by individuals are generally held at from $25 to $30 per acre. Where the better class of timber has been cut off, the price varies from $10 to $15 per acre. There are also large tracts of stump land, which will develop into valuable farms, and which are now held at from $2 to $10 per acre. Improved farms are held at from $40 to $100 per acre, according to location, soil, etc. Good roads traverse the county in every direction. The winters are not unusually long, the snow falling to an average depth during the season of 15 inches. Plowing generally commences by April 1st. The privileges incident to schools and churches are first-class in every respect. Farming and fruit-raising are the principal industries, creating a fair demand for labor, wages ranging from $1 to $1.50 per day, without board. The county is traversed by the Chicago and West Michigan, Lake Shore and Michigan Southern, Grand Rapids and Indiana, and Allegan and Southeastern railroads. It enjoys unrivaled market facilities, there being a steady demand for all of its productions in the Grand Rapids and Chicago markets.

ALPENA COUNTY.

Alpena county was organized in 1857. It is bounded on the north by Presque Isle, on the west by Montmorency, on the south by Alcona, and on the east by Lake Huron. Alpena, a flourishing city of 8,000 inhabitants, is the county seat. It has an area of 540 square miles, and had a population in 1880 of 11,000. The surface of of the country is gently rolling, and is well watered by .Thunder Bay and Hubbard rivers, also by innumerable springs, brooks, and lakes, which abound with all varieties of fish, and afford ample water power in many townships. There are but few sand plains in this county, but a considerable quantity of swamp land may be found, nearly all of which is subject to drainage. The soil in the western portion of the county is chiefly a dark loam with clay subsoil; in the eastern portion it is of a sandy nature, though quite fertile in many localities. The prevailing varieties of timber are beech, maple, elm, ash, hemlock, and large quantities of cedar. Winter wheat, oats, peas, and barley are successfully grown. Corn, though not a staple product, often yields a large crop. Apples, pears, and all varieties of plums are grown on every farm, and always find a ready market in Alpena. The cost of clearing averages about $20 per acre, and the wood cut brings from $2.50 to $3.50 per cord.

There were 4,040 acres of government, 21,108 acres of State swamp, 5,520 acres of primary school, and 880 acres of agricultural college land subject to entry May 1, 1883. Plenty of desirable unimproved lands in the hands of private parties are to be had at prices ranging from $2 to $5 per acre. Some of the most valuable lands in the county have been pine lands originally. The best farming lands are located three or four miles back from the mouth of the rivers, and when improved are held at from $10 to $50 per acre. The Alpena and Torch Lake State road leads due west from Alpena, through the center of the county. There is also a good local State road system, which makes all parts of the county accessible.

Alpena has about six months of fair weather, three months of steady winter, and

three months of very broken weather in the spring and fall. Snow averages about one foot in depth, and usually comes by December 1st. Farmers begin plowing by April 1st. The schools and churches are in a flourishing condition, and the intelligence of Alpena county will compare very favorably with any locality in the State. The county is remarkably free from malaria and fevers, doubtless owing to the influence of the lake on its eastern border. Lumbering is carried on extensively, and labor is always in good demand. The fishing industry is by no means a small one, and a large number of men and boats are annually employed in catching and preparing fish for the Detroit and Cleveland markets. There is also a large traffic in cedar, used for posts, telegraph poles, and railroad ties.

Alpena will have a railroad from Beaver Lake, on the Mackinaw division of the Michigan Central, during the present year, and the road leading northward from Tawas City along the lake shore will eventually reach it. It has been for some years an important lake port, vessels of every description being found in its harbor during the summer season, and there is no doubt but that the county will at once feel the impetus given it by this double outlet.

ANTRIM COUNTY.

Antrim county was organized in 1863. It is bounded on the north by Charlevoix, on the east by Otsego, on the south by Kalkaska, and on the west by Grand Traverse Bay. Bellaire, situated near its geographical center, a town of 200 inhabitants, is the county seat. Elk Rapids, situated on the east branch of Traverse Bay, originally the county seat, is one of the most delightful summer resorts in Northern Michigan, and during the summer season is thronged with visitors from all parts of the Union. Here are located the immense smelting works of Dexter, Noble & Co., which produce thousands of tons of pig iron annually. The county has an area of 582 square miles, and had a population in 1880, of 5,237. The surface of the territory is generally gently rolling, hilly in places, but little land so rolling as not to be easily cultivated, and is well watered by numerous lakes and spring brooks. Elk, Torch, and Clam Lakes are navigable for small steamers, and in 1882 there were nine steam vessels plying on the inland waters of this county.

There are scarcely any swamp lands to be found, and no sand plains, with the exception of a few acres in one township. The general character of the soil is a sandy loam with clay soil in places, containing an abundance of lime. The timber comprises nearly every variety. Beech, sugar maple, elm, cedar, and hemlock are found in large quantities. The cereals yield bountifully, winter wheat averaging 30 bushels to the acre. Potatoes are a very successful crop, and, in fact, all root crops and vegetables are receiving careful attention at the hands of the farmer. In the southern and western portions of the county, all kinds of fruit are a sure crop, apples taking the lead. Grapes also do well with care.

The cost of clearing averages $20 per acre, and the wood can be sold at from $1.50 to $2 per cord. All lands situated within two miles of the inland lakes can be cleared for $5 per acre. The wood and logs pay the balance of the expense. The charcoal furnaces furnish a good wood market.

There were 14,000 acres of government, 126 acres of State swamp, 5,520 acres of primary school, 880 acres of Agricultural college, 89,069 acres of Grand Rapids and Indiana railroad, and 10,080 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1st, 1883. The timbered lands are held at from $5 to $10 per acre, and are, for the most part, found to be valuable farming lands. There are three State roads running through the county, and in the more settled portions all roads are comparatively good. Snow falls early, and the winters are uniformly steady. The ground rarely freezes. The climate is universally regarded as a good one, as the country is free from malaria and the seasons are so well defined. Schools are multiplying annually, and already the county board claim for them as high a grade of excellence as can be found in any of our northern counties. The traffic in hardwood lumber is a considerable one, and labor is in great demand, in fact, the supply by no means equals the demand. Wages range from $20 to $30 per month with board. The Grand Rapids and Indiana railroad crosses the county from south to north, and affords a good outlet for all marketable productions. The enterprising immigrant can find no better field than Antrim county for mercantile, manufacturing, or agricultural operations.

ARENAC COUNTY.

The bill organizing the county of Arenac from the county of Bay, passed the legislature in April, 1883. It is an event of so recent occurrence, that as yet the office has no information pertaining to it, other than that found in the article on Bay county.

BARAGA COUNTY.

Baraga county was organized in 1875. It was taken from Houghton, and is bounded on the north by Houghton and Lake Superior, on the east and south by Marquette, and on the west by Houghton and Sturgeon river. L'Anse, a town of 1,500 inhabitants, is the county seat. It has an area of 900 square miles, and had a population in 1880 of 2,000. The surface of the country is generally undulating, although some level land is found in the Sturgeon Bay valley and in the southeastern townships.

The county is well watered by a number of streams, the Sturgeon river, on the western boundary, being the largest river in the upper peninsula. Ample water power is afforded by several of these streams. Nearly every variety of soil is found, the valley lands being particularly rich. The subsoil in most parts consists of gravel, sand, and clay, underneath which can be found either slate rock or sandstone. The timber consists of sugar maple, pine, hemlock, birch, cedar, spruce balsam, and Norway pine. Some wheat is raised, but the principal crops are hay, oats, potatoes, beans, and garden vegetables, all of which find a ready market. Fruit-growing is in its infancy, yet several varieties of apples and cherries are grown successfully. Clearing costs about $15 per acre. Hard wood brings from $3 to $4 per cord; soft wood about $2. Farmers do not plow for the first crop.

There were 57,000 acres of government, 10,814 acres of primary school, 717 acres of Lake Superior ship canal, 2,000 acres of St. Mary's canal, and 149,450 acres of Michigan Land and Iron company's land subject to entry May 1st, 1883. Many of these lands are desirable for agricultural purposes, and can be had at prices ranging from $1.50 to $5 per acre. Three State roads lead out from L'Anse in different directions, rendering all parts of the county accessible. Snow falls in November, and leaves about April 1st. The winters are very steady, and the climate may be said to be exceptionally fine. Farmers commence work about the 1st of May. Free schools are open ten months in the year.

A number of iron mines are in constant operation, and stone and slate quarries are being successfully developed. These, with the lumbering and fishing industries, cause a demand for labor at all times, which is often hard to supply. A railroad is projected across the county from east to west, running from L'Anse to Ontonagon. The Marquette, Houghton and Ontonagon railroad enters the county from the southeast, its present terminus being L'Anse. Other railroads are projected which, with the excellent water communication (there being 80 miles of sea coast), will very materially aid the commercial enterprises of this new and rapidly developing county.

BARRY COUNTY.

Barry county was organized in 1839. It is bounded on the north by Kent and Ionia, on the east by Eaton, on the south by Calhoun and Kalamazoo, and on the west by Allegan. It has an area of 576 square miles, and had a population in 1880 of 25,319. Hastings, a beautiful town of about 2,700 inhabitants, is the county seat.

The surface of the country is generally rolling. There are some level tracts, and some hilly portions, but all parts of the county are tillable.

It is watered mainly by small streams and inland lakes, although Thornapple river, a stream of considerable size, crosses the county, affording a number of water-power privileges.

The soil in eight townships is of heavy clay with a mixture of gravel. The other townships are somewhat sandy with a clay subsoil.

The timber now standing comprises the beech, maple, basswood, and oak varieties. Winter wheat is the great staple, although corn, oats, potatoes, beans, and barley are all successfully raised. Plenty of grasses for grazing are found in all sections of the county, timothy and clover being the principal varieties.

Winter apples are grown extensively for shipping purposes. Smaller fruits are not raised in the same proportion, but enough for domestic purposes can be calculated upon at every farm-house.

Clearing averages from $10 to $15 per acre. Wood is cheap, there being no demand save for local consumption. The only desirable lands for sale are those which have been partially improved, and these are worth from $15 to $40 per acre, according to location. There are a few tracts of unimproved land in the market, but they are, in the majority of cases, held at rather a high figure.

Good roads are the rule in every township. The climate is a variable one, snow falling about Dec. 15th to a moderate depth. The ground usually freezes quite deep, yet farmers can generally begin spring work by April 1st.

The schools are excellent, and churches are scattered here and there all over the county.

Agricultural pursuits are extensively followed, and farm laborers are always in good demand, wages ranging from $18 to $25 per month with board.

The Grand Rapids branch of the Michigan Central railroad crosses the county from east to northwest, and the Allegan and Southeastern cuts off the southwest corner, affording ample market privileges.

BAY COUNTY.

Bay county was organized in 1857. It is bounded on the north by Arenac, on the east by Tuscola and Saginaw Bay, on the south by Saginaw, and on the west by Midland and Gladwin. It has an area of 1,008 square miles, and had a population in 1880 of 40,000. Bay City, a thriving city of 23,000 inhabitants, situated on Saginaw river four miles from its mouth, is the county seat. The land is level with the exception of that part of the county north of Lincoln and Standish townships, which is slightly rolling. Although there is a large extent of coast line, and many rivers flowing into the bay, there are but few water powers, and those are somewhat limited in capacity. These may be found on the Rifle, Kawkawlin, and Au Gres rivers. The soil is a deep, rich loam, with a clay subsoil very much mixed with limestone. Oak, elm, basswood, ash, beech, maple, and hemlock comprise the principal varieties of timber. The county is noted for its wheat, 40 bushels to the acre being a common yield. Hay, oats, and corn are also extensively raised. Apples are grown in abundance. The fruit buds are retarded by the cool lake winds, and thus escape the early frosts. The smaller fruits are a more uncertain crop, although grapes of the hardier varieties do well along the shore.

The cost of clearing averages $20 per acre, and the wood cut finds a ready market at a fair price. There were 678 acres of State swamp, 2,194 acres of primary school, and 4,360 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1, 1883. There are large tracts of timbered land, suitable for agricultural purposes, which can be had at prices ranging from $8 to $10 per acre. They are generally within easy reach of the railroad towns.

The climate is a variable one. Snow falls by Dec. 1st, and averages about one foot in depth during the season. The ground generally freezes from one to two feet in depth, hence farmers begin work about ten days later than in Southern Michigan.

The privileges incident to schools and churches are unexcelled, the public schools of Bay City being especially fine.

All sorts of enterprises are engaged in successfully, lumbering, manufacturing, and fishing being the principal industries. Common labor is always in good demand, wages ranging from $19 to $30 per month with board. The county is spending a large amount of money in macadamizing the principal thoroughfares of the county, and every portion of it can be readily reached by railroads, water, or good wagon roads.

The Flint and Pere Marquette, Michigan Central, and Detroit and Bay City railroads afford excellent outlets for all of the productions of the county. Bay City is an important lake port, the largest vessels entering its harbor during the season for navigation.

BENZIE COUNTY.

Benzie county was organized in 1869. It is bounded on the north by Leelenaw and Lake Michigan, on the east by Grand Traverse, on the south by Manistee, and on the west by Lake Michigan. It has an area of about 350 square miles, and had a population in 1880 of 3,433. Benzonia, a growing town of 250 inhabitants, situated on Crystal lake, is the county seat. A strip of country about ten miles in width along the lake shore is of a hilly character, and is not as desirable for farming purposes as the land farther east, which is comparatively level, and is remarkably productive. The county is watered by two small streams, running through it from east to west, also by several small inland lakes. A sandy, gravelly soil predominates, but there are large tracts containing clay, and on some farms the soil is little else than clay; on others it is a sandy loam, warm and highly productive. The sugar maple, elm, basswood, beech, birch, white oak, hemlock, and cherry, constitute the prevailing varieties of timber.

The soil seems well adapted to all root crops. Potatoes grow to the greatest perfection, and clover does remarkably well. In good seasons wheat and corn do

well, although the lack of rains has caused some difficulty for a few years past, owing to the fact that the ground leaches rapidly. The ten-mile belt referred to above produces splendid fruit, and in fact the whole northern part of the county may be said to be a fruit-growing district. Peaches, pears, apples, plums, grapes, cherries, and berries of all kinds grow in profusion. Peaches have grown for twenty years without interruption.

The cost of clearing averages about $15 per acre, and wood finds a ready market in several localities. There were 3,700 acres of government, 2,191 acres of State swamp, 1,560 acres of primary school, and 4,280 acres of Agricultural college land subject to entry May 1, 1883. Good agricultural lands, well timbered, can be had at from $3 to $15 per acre.

Two State roads pass through the county, one from Manistee along the lake shore to Frankfort and Leland, and the other from Manistee to Traverse City, passing through Benzonia, Garfield, Almira and Homestead.

The climate is a very desirable one, the seasons following each other without the marked variations in temperature found in counties further south. The ground does not freeze, and plowing begins in April. The average depth of snow is two feet.

The schools are very good, and a college at Benzonia prepares teachers for the common and graded schools.

There is a constant demand for labor, owing to the development of so many industries incident to a timbered country. It is expected that a railroad will reach Frankfort from the south during the coming year. Several lines of steamers touch at Frankfort, affording an outlet for the products of the county. A large iron furnace near Frankfort creates a steady demand for hard wood, and employs a large number of men.

BERRIEN COUNTY.

Berrien county was organized in 1831. It is bounded on the north by Van Buren, on the east by Van Buren and Cass, on the south by Indiana, and on the west by Lake Michigan. It has an area of 568 square miles, and had a population in 1880 of 36,780. Berrien Springs, a village of about 800 inhabitants, is the county seat. The surface of the country is generally rolling. There are a few swamp lands and some sand hills near the border of the lake.

The county is watered by the St. Joseph, Paw Paw, and Galien rivers, which furnish fine water-powers at Niles, Watervliet, and New Troy.

The soil is generally a clay loam. In the western part of the county there is some lighter soil to be found, admirably adapted to fruit culture.

The prevailing varieties of timber are oak, whitewood, beech, and maple.

All kinds of grain are successfully cultivated. Winter wheat yields bountifully. The fruit belt is a scene of remarkable interest in the proper season. Hundreds of children are employed between June and September, during the school vacation, in gathering the numerous varieties of fruit which are so extensively grown in this region. Peaches, grapes, and apples are the main product. The land of this county is mostly cleared, all public lands having been taken up for some years. There are a few unimproved tracts which may be had at a reasonable figure. Improved farms are held at from $20 to $100 per acre.

The climate is a variable one, the winds of the lake causing a great variation in the temperature. Yet the more severe frosts of the interior are not experienced to any considerable extent.

The privileges of schools and churches are, in the main, excellent.

Manufacturing enterprises are somewhat extensively engaged in at St. Joseph, Niles, Benton Harbor, and Buchanan, but agriculture and fruit raising may be said to be the principal industries of the county. Labor is in fair demand, particularly during the summer and fall seasons, wages ranging from $16 to $25 per month with board. The Michigan Central and Chicago and West Michigan railroads pass through the county. During the navigable season excellent shipping opportunities are afforded at St. Joseph, Benton Harbor, and New Buffalo.

BRANCH COUNTY.

Branch county was organized in 1833. It is bounded on the north by Calhoun, on the east by Hillsdale, on the south by Indiana, and on the west by St. Joseph. It has an area of 504 square miles, and had a population in 1880 of 28,000. Coldwater, a city of 4,800 inhabitants, is the county seat. The surface of the county is generally level, although about one-third of the county is gently rolling. There are no hills of

any magnitude. There are four streams running through the county in a westerly direction, all affording small water powers. The St. Joseph, at Union City, is used for milling purposes. There are also a number of beautiful inland lakes. About one-half of the county has a soil of sandy loam, quite gravelly, with a hard subsoil of lime and clay. The soil of the other half is principally clay.

The timber is mainly oak, ash, beech, maple, basswood, hickory, elm, walnut, and butternut. More than half of the county was originally an oak opening. Wheat, corn, oats, hay, and potatoes, are the principal crops. Considerable attention is paid to stock-raising, and there is, in consequence, a good market for all kinds of fodder. Apples do well, but peaches are not successfully grown. The winters are a little too severe for the trees. The cost of clearing averages $10 per acre, and the fire-wood pays for the clearing, as there are good local markets for both hard and soft wood. There are no Government or State lands in the market. There are a few tracts of unimproved lands, but they are held for the timber, and are worth nearly as much as improved lands. (Improved lands are worth from $20 to $100 per acre). Fine roads traverse the county in every direction. The climate is similar to that of other localities in this latitude. The season for maturing crops has not failed more than twice in 44 years.

Snow falls by December 1st, and averages a foot in depth. Farmers commence plowing by March 15th.

This county has all of the educational advantages found in long settled communities.

There is a good demand for labor from April 1st to December 1st, as the industries of the county are largely agricultural. Manufacturing is engaged in to quite a considerable extent in the larger towns. The Michigan Central, Michigan Southern, and Fort Wayne and Jackson railroads cross the county. Excellent shipping privileges are thereby ensured to the producers of all marketable articles.

CASS COUNTY.

Cass county was organized in 1829. It is bounded on the north by Van Buren, on the east by St. Joseph, on the south by Indiana, and on the west by Berrien. The county has an area of 504 square miles, and had a population in 1880 of 22,000. Cassopolis, a town of about 1,000 inhabitants, is the county seat.

The surface of the county is generally rolling with a few level prairies. It is well watered by inland lakes and ponds, a few small streams furnishing good water power. On the oak land the soil is a sandy loam, while on the prairies it is what is known as a black prairie soil. A clay and gravelly subsoil is usually found. The timber is mainly of oak, hickory, beech, maple, ash, elm, white, and basswood.

Wheat, corn, hay, oats, barley, rye, and potatoes are the usual crops, while nearly all kinds of fruits do well, particularly apples, which are shipped in large quantities.

The cost of clearing averages about $15 per acre. There are good markets for wood, from $1.50 to $3.00 being the usual prices for cordwood. There are no public lands of any description in the market. There are a few tracts of unimproved land which can be had at from $15 to $25 per acre for low land and at from $25 to $40 per acre for timbered land. The improved lands are held at from $40 to $100 per acre.

Snow falls early, and averages 10 or 12 inches in depth. The season for plowing usually commences about April 1st. The privileges of schools and churches are unsurpassed. Labor is in fair demand, particularly in the summer season, as every agricultural industry is well developed. Wages range from $16 to $25 per month with board. The Michigan Central main line, its air line, the Cincinnati, Wabash and Michigan, and the Chicago and Grand Trunk railroads pass through the county, placing every township within easy reach of market.

CHARLEVOIX COUNTY.

Charlevoix county was organized in 1869. It is bounded on tho north by Emmet and Lake Michigan, on the east by Cheboygan and Otsego, on the South by Antrim, and on the west by Lake Michigan. It has an area of 396 square miles, and had a population in 1880 of 5,115. Charlevoix, a flourishing village of 1,500 inhabitants, situated on Lake Michigan, is the county seat. The surface of the county is every where rolling, and in some parts decidedly hilly. The county is well watered. Pine Lake, a beautiful sheet of water, stretches 14 miles in an easterly direction from Charlevoix village. Six miles from Charlevoix, a branch of the lake runs in a southerly direction eight miles. The branch is fed by the famous trout fishing stream, the Jordan. The

Boyne flows in at the east end of the lake, and the county generally is covered with innumerable spring brooks of the coldest water. There is some available water power, particularly on the Jordan and Boyne rivers. The soil varies from a light sandy to a heavy clay, filled with calcareous matter. The subsoil is of as varied a nature as that of the surface.

Sugar maple, elm, beech, basswood, ash, hemlock, and cedar timber is found in great quantities throughout the county.

The principal crops are winter wheat, oats, corn, hay, clover, potatoes, and root crops. The summer resorts at Charlevoix furnish an excellent market for all sorts of garden vegetables.

All fruits do well, excepting grapes and peaches. The hardier kinds of apples are especially successful. Charlevoix county is at the northern extremity of the celebrated Michigan fruit belt. The cost of clearing averages $20 per acre, although the wood produced generally pays for the clearing.

There are no government lands in the market. There were 344 acres of State Swamp, 1,995 acres of primary school, 3,525 acres of Agricultural College, and 42,285 acres of Grand Rapids and Indiana railroad land, subject to entry May 1, 1883.

Unimproved lands are held at from $7 to $10 per acre, while improved farms average from $15 to $60, in the interior, and from $25 to $100 near Charlevoix. There is a State road from Traverse City to Petoskey, which crosses the county. There are a number of wagon roads traversing the county, most of which are new, but are steadily improving. There are also several tramroads built through belts of hard-wood timber which facilitate travel. Much of the travel in summer is by water. The winter is very steady, snow falling by November 15th, and lasting five months. The summer season is delightful, and the county is a great resort for invalids afflicted with asthmatic difficulties. The schools are very creditable for a new county.

As Pine Lake is navigable for large vessels, the timber business is an important enterprise in this county. Wood, ties, fence-posts, hemlock bark, and logs are cut during the winter, and are shipped during the winter to Chicago, Milwaukee, Racine, and other lake ports. There are several saw-mills in the county. An iron furnace at Ironton, on Pine Lake, furnishes employment to a large number of men. The fishing industry is also a considerable one.

The Grand Rapids and Indiana railroad crosses the county from north to south, and a railroad is expected at Charlevoix within a year.

The famous resorts on Pine Lake have contributed largely to the development of the county, and are thronged every summer with admirers of the beautiful scenery and delightful climate of Charlevoix county.

CALHOUN COUNTY.

Calhoun county was organized in 1833. It is bounded on the north by Barry and Eaton, on the east by Jackson, on the south by Branch and Hillsdale, and on the west by Kalamazoo. Marshall, a city of 3,800 inhabitants, is the county seat. The county has an area of 720 square miles, and had a population in 1880 of 38,452. The surface of the county is gently rolling. The Kalamazoo river crosses the county from east to west, affording a number of water powers. There are 14 or 15 flouring mills in the county which are run by water. The county is otherwise well watered by a number of small streams. Nearly every variety of soil is found, a light, sandy, loam characterizing some townships, and a strong clay, others. A good clay subsoil generally underlies the surface at a proper depth.

Oak is the principal variety of timber, although there is some beech, maple, whitewood, elm, and walnut. Wheat and corn are extensively raised. The soil produces wonderfully well, though of a light appearance in localities. Garden vegetables of every variety grow abundantly with little care. Apples are the principal fruit crop, though peaches and pears are raised to a limited extent. The smaller fruits are successfully grown in every township.

The timber on any available tract would pay for the clearing, as there is a good market for wood. There are no government or State lands on the market. Improved lands are held at from $25 to $100 per acre. The unimproved lands are generally attached to improved farms and are not for sale. The seasons are well defined, snow rarely falling out of the winter months. The ground freezes to a moderate depth, and spring work begins early in April.

The county schools are improving yearly, and those of the larger towns are among the best in the State.

Agriculture is the principal industry, although large manufacturing interests are

centered at Battle Creek and Albion. Labor is in fair demand particularly in the summer season, wages ranging from $16 to $25 per month, with board.

The Michigan Central railroad main line, its Air Line, the Chicago and Grand Trunk, and the Lansing branch of the Michigan Southern, traverse the county.

Calhoun is one of the wealthiest counties of the State, and is a very desirable county in which to locate, taking into consideration all of its resources and advantages. Albion College, a denominational institution under the control of the Methodists, is located at Albion, and has a large pupilage.

CHEBOYGAN COUNTY.

Cheboygan county was organized in 1853. It is bounded on the north by Lake Huron and the Straits of Mackinaw, on the east by Lake Huron, on the south by Otsego and Montmorency, and on the west by Emmet and Charlevoix. Cheboygan, a rapidly growing town of 2,500 inhabitants at the mouth of the Cheboygan river, is the county seat. It has an area of 792 square miles, and had a population in 1880 of 6,524.

The surface of the country is greatly diversified, level plains being found in some localities and rolling lands in others, the hills on the borders of the lake sometimes rising to a height of two hundred feet. It is watered by the Rainy, Black, Pigeon, Cheboygan, and Maple rivers, also by Cheboygan, Black, Mullet, Burt, and Douglass lakes. Several of these lakes are navigable, affording excellent opportunities for transportation of wood, bark, etc., and the rafting of logs. The streams furnish good water power in various places.

The soil is composed of red clay in some portions and sand and clay loam in others, generally rich and productive. The timber consists of maple, beech, pine, cedar, hemlock, poplar, elm, and basswood. The principal crops are wheat, corn, oats, hay, potatoes, and vegetables, all of which are successfully grown. Apples, plums, cherries, and berries do well, but peaches and pears are not as successful. The cost of clearing averages about $15 per acre, and a fair market for wood is found at Cheboygan.

There were 7,741 acres of government, 14,712 acres of State swamp, 9,220 acres of primary school, 5,408 acres of agricultural college, and 67,593 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1st, 1883. Unimproved lands can be had at from $3 to $10 per acre, while improved farms are held at from $15 to $60. A State road runs from Cheboygan to Petoskey and one from Cheboygan to Rogers City. Other roads of more recent construction traverse the county.

Snow usually falls about Nov. 1st. The average depth attained during the winter may be said to be 20 inches. The ground seldom freezes, and spring work commences early in May.

The schools in the country are as yet small, and widely separated. The graded schools in Cheboygan are very good, and as the county grows in population all of the schools will rapidly improve. The county is in the main free from malaria. The great changes in temperature cause some rheumatic complaints, but as a rule the county is very healthy.

The lumbering interests are very extensive, employing at remunerative wages a great many men, and as fast as the land can be cleared new farms are being developed, which add yearly to the wealth and resources of the county. Fishing is also extensively engaged in. Labor is always in good demand.

The Michigan Central railroad (Mackinac division) passes through Cheboygan, and lake vessels of the largest size enter its two harbors, one of which is in Cheboygan proper, the other at Duncan City, a mile distant.

CHIPPEWA COUNTY.

Chippewa county was organized in 1826. It is bounded on the north and east by St. Mary's river and Lake Superior, on the south by Mackinac and Lake Huron, and on the west by Schoolcraft. It is the third county in the State in size, and has an area of 2,232 square miles. Its population in 1880 was 5,300, largely Canadian. Sault Ste Marie, a town of 2,000 inhabitants, is the county seat. This town is located on the St. Mary's river, at a point where the government canal around the rapids was constructed. It will soon be reached by three railroads, viz.: The branch of the Detroit, Mackinac and Marquette, the northern extension of the Grand Trunk, and a branch of the Canadian Pacific. A syndicate has recently been formed for the for the purpose of constructing a bridge across the river at this place.

The surface of this county is gently rolling. In the northern portion of the county there is considerable sandy land, also a few cedar swamps which are easily drained. The eastern portion, particularly that lying south of Sault Ste. Marie, comprising also a part of what are now known as the "burnt lands," is a very desirable agricultural region, the soil being a deep red clay which is easily worked, and, after exposure to the atmosphere, pulverizes, and is not liable to become sun-baked or cracked. The soil is peculiarly adapted to the raising of peas, and the entire absence of bugs makes the crop much sought after by seedsmen. A small portion of the middle part of the county has a light sandy soil, timbered with scattering pine, and surrounded by fine bodies of hard-wood land with a rich, sandy-loam soil. The western portion is timbered with pine of a good quality. There are also large tracts of choice hard-wood land interspersed with scattering pine. The southern portion of the western part of the county is in the valley of the Tahquamenon. The timber is cedar and pine. On the bottoms are extensive meadows of blue-joint grass, the soil being a dark vegetable mould with clay subsoil. The county is well-watered by the Tahquamenon, and its many branches; also by the St. Mary's, Two-hearted, Munnusco, Carp, and numerous smaller streams and inland lakes. Fine water powers are to be found on many of these streams. St. Mary's river has one of the finest water powers in the world, there being a fall of 18 feet between lakes Superior and Huron.

The principal crops are wheat, oats, barley, peas, hay, and all sorts of root crops. Considerable attention has been paid to farming within the past four years. The county took the first prize for spring and winter wheat at the State fair held at Jackson in the fall of 1882. Corn is not successfully grown. Peas, hay and potatoes are among the most profitable crops. The smaller fruits grow to great perfection and are of the finest flavor. All sorts of berries grow in abundance, but the larger fruit do not succeed as well, owing to the length of the winters.

There are large tracts of "burnt lands" which can be cleared at from $2.50 to $10 per acre. The cost of clearing the heavier timbered lands, however, will average $15 per acre. There are good wood markets at the Sault, and at the towns along the Detroit, Mackinac and Marquette railroad. There were 187,000 acres of government, 297 acres of State swamp, 31,767 acres of primary school, 404,809 acres of Detroit, Mackinac and Marquette, and 2,472 acres of Lake Superior Ship Canal and Iron Company's land subject to sale May 1, 1883. The unimproved lands vary in price from $1.25 to $10 per acre, according to their location. Along the line of the railroad large tracts are being taken up, both by the settlers and by non-residents, who can foresee their future value. A State road connects St. Ignace with the Sault. There are also many local roads, newly made, which are opening up the country in every direction. Winter sets in early. The snow falls to an average depth of three feet, the ground seldom freezing. Plowing begins as soon as the snow is off the ground, generally by April 1st. Crops mature rapidly, owing to a peculiarity of the climate. The atmosphere is remarkably dry, and is tempered and equalized by the great lakes to the north and south. The health of the citizens of this locality is materially improved by the entire absence of malaria.

The lakes and spring brooks are filled with every variety of brook trout, the best evidence in the world of the purity of their waters.

There are at least 15 district schools in the county, and many others in process of organization.

The principal industries are lumbering, agriculture, fishing, and the burning of charcoal, creating a steady demand for labor, both in winter and summer. The Detroit, Mackinac and Marquette railroad extends from St. Ignace to Marquette, and a branch will be built in 1884 from near Newberry, in Mackinac county, to the Sault.

Chippewa is a great county. It has the best of agricultural and timbered lands, a great variety of soil, fine water privileges, good society, available markets, and excellent shipping facilities. The attention of the immigrant has been turned in this direction, and its rapid development is an assured fact.

CLARE COUNTY,

Clare county was organized in 1871. It is bounded on the north by Missaukee and Roscommon, on the east by Gladwin, on the south by Isabella, and on the west by Osceola. It has an area of 576 square miles, and had a population in 1880 of 4,187. Harrison, a town of 800 inhabitants, is the county seat. The surface of the country is gently rolling, with some hilly sections in the center of the county. It is well watered by small streams, inland lakes, and spring brooks. At Farwell a small water power is afforded (by the Tobacco river) which might be used to run several

mills. The swamps are mostly cedar and ash, and are easily drained. A number of townships have a light, sandy soil with a clay subsoil. A large part of the county, however, has a good clay soil.

Pine, hemlock, beech, maple, basswood, and elm comprise the principal varieties of timber. The crops are mainly wheat, hay, and potatoes. Oats are successfully grown in some townships. The county being new, fruit-raising has not as yet had a fair test. There are, however, thrifty young orchards which give promise of bearing large crops in the near future. The cost of clearing averages $20 per acre. There are convenient wood markets all along the line of the railroads.

There were 2,000 acres of government, 509 acres of State swamp, 3,098 acres of Agricultural college, 3,100 acres of Flint and Pere Marquette, and 807 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883. There are large tracts of unimproved lands in the market, which can be had at from $8 to $10 per acre, while improved farms range from $15 to $60. There are also large quantities of stump lands, which will eventually make good farms, and which are held at from 50 cents to $6 and $7 per acre.

There are two State roads in the county, one running north from Farwell to Houghton Lake, and the other running north and east from Clare to Gladwin. The local roads are generally in a fair condition. Snow falls by December 1st, and attains a depth of from 12 to 18 inches. The ground does not freeze to a great depth, and spring work usually begins by April 15th.

The schools are fair considering the newness of the county. At the villages along the line of the railroads they are very good indeed.

The industries are lumbering and agriculture. Labor is always in good demand, particularly in the lumber woods, wages ranging from $23 to $30 per month with board. The Flint and Pere Marquette railroad and its branches cross the county, affording a good outlet for its vast lumber resources.

CLINTON COUNTY.

Clinton county was organized in 1839. It is bounded on the north by Gratiot, on the east by Shiawassee, on the south by Eaton and Ingham, and on the west by Ionia. It has an area of 576 square miles, and had a population in 1880 of 28,100. St. Johns, a thriving town of 2,370 inhabitants, is the county seat. The surface of the county is gently rolling, and is well watered by the Looking Glass and Maple rivers, and the small brooks flowing into them. The swamp lands have nearly all been reclaimed. The water powers are of no particular value, owing to the level character of the land. Through the center of the county, east and west, the soil is a rich clay loam. North and south of this central belt, there are belts of sandy and gravelly loam, originally oak openings. The swamps are rich with muck and marl.

The prevailing varieties of timber are oak, maple, basswood, beech, ash, hickory, elm, and walnut, with a small area of pine in the northeastern part of the county.

Every crop which is peculiar to this latitude can be successfully grown in Clinton county. Wheat yields bountifully. Oats, corn, and barley, and all root crops are always successful, and the swamps yield large crops of onions. Apples, pears, peaches, berries, and grapes also do well, and a considerable quantity of wine is made in some townships. The cost of clearing is usually estimated at from $10 to $20 per acre, with good wood markets along the line of the railroad. There are no government or State lands in the market. There are a few tracts of unimproved land which are held at from $20 to $40 per acre; they are generally reserved for their timber. Improved lands range from $25 to $100 per acre, according to location, improvement, etc.

The roads in this county are unsurpassed by those of any county in the State.

The seasons are variable; frequently there will be from four to ten weeks of sleighing, and again there will be comparatively little, if any. Snow falls late in December, and the ground is usually frozen to a considerable depth. Spring opens early, plowing usually commencing by April 10th. Every part of the county is well supplied with schools. There are excellent union and graded schools in the villages.

Considerable lumbering is done in the county by means of portable mills. Railroad ties and telegraph poles are gotten out in large quantities. Agriculture and stock-raising, however, are the principal industries.

Labor is usually in good demand, particularly in the summer season, when the demand is hardly ever met. The winter seasons are less busy, and the surplus labor finds remunerative employment in the lumber camps to the northward.

The Detroit, Grand Haven and Milwaukee railroad crosses the county from east to west, while the Detroit, Lansing and Northern, and Jackson, Lansing and Saginaw cross the southwestern and southeastern portions of the county respectively.

CRAWFORD COUNTY.

Crawford county was organized in 1879. It is bounded on the north by Otsego, on the east by Oscoda, on the south by Roscommon, and on the west by Kalkaska. It has an area of 576 square miles, and had a population in 1880 of 1,159. Grayling, a village of 600 inhabitants, is the county seat. The surface of the county is generally rolling, although hilly in localities. It is one of the best watered inland counties in the State. The Au Sable river rises in its northwest corner, runs south to its center, thence easterly across the county. Its east, north, and south branches also cross the county in different directions. There are also numerous inland lakes and small streams, all affording fine water power, which can be easily utilized.

The soil in the greater portion of the county is sandy, varying from quite light to the heaviest gravelly loam, with subsoil similar to that of the surface; although there are often tracts of heavy clay and clay subsoil under a sandy surface.

The timber is mainly of white, Norway, and spruce pine, interspersed in localities with oak, maple, and birch, with large maple forests in the northern tier of townships.

Wheat, oats, rye, buckwheat, the early varieties of corn, Hungarian grass, and millet do well in the county, while the native grasses cannot be excelled for grazing purposes. The native hay on the barren meadows is equal to timothy as to its fattening qualities.

Little progress has been made in fruit culture; yet, enough has been done to prove its ultimate success. The smaller fruits are perfect, and yield abundantly. The cost of clearing timbered land averages $15 per acre, while the spruce, pine and plains can be fitted for the plow at an average cost of $2.50 per acre.

There were subject to entry May 1, 1883, about 20,000 acres of government, 10,451 acres of State swamp, 4,939 acres of primary school, and 100,808 acres of Jackson, Lansing and Saginaw railroad. Unimproved lands, near the railroad, are held at from $5 to $10 per acre, while improved lands range from $15 to $50. Stump lands are held at from $3 to $6, and some of the best soil in the county is found in these tracts, especially where the pine is mixed with hard-wood. The soil is very favorable to good roads, and a fine State road runs from Grayling to Au Sable on Lake Huron.

Snow falls by December 1st, to a depth averaging from 8 to 14 inches. The ground freezes but little, so that plowing begins early in the spring, though frosts come as late as May 15th. The schools are as good as could be expected in so new a county, and are steadily improving. The lumbering interest is as yet the main one, and labor is always in good demand, wages ranging from $24 to $30 per month with board. The Mackinaw division of the Michigan Central railroad passes through the county from south to north, and affords immigrants a good opportunity to examine the general aspect of the county, while passing through. The county is destined to be a part of the garden of Michigan, as the plain lands, once thought to be of no value, are now found to be well worthy of attention, and often very productive.

DELTA COUNTY.

Delta county was organized in 1861. It is bounded on the north and east by Schoolcraft, on the south by Green Bay and Lake Michigan, and on the west by Menominee and Marquette. It has an area of 1,152 square miles, and a population in 1880 of 6,812. Escanaba, a town of 4,000 inhabitants, situated on an arm of Green Bay, is the county seat.

The country is generally level. There are areas of rolling land along the rivers, nine of which traverse the county from north to south. The soil on the rolling lands is a sandy loam, with clay subsoil and a limestone foundation; on the plains it is sandy, and on the marshes a vegetable loam with sandy subsoil. On the rolling lands the timber is principally beech, birch, and maple, on the plains pine abounds, while in the swamps cedar and tamarack are found in large quantities. The principal crops are wheat, oats, all the grasses, potatoes, and garden vegetables of the hardier sorts. No fruit is grown, although apples might be successfully grown upon the clay soil. The cost of clearing varies. Swamps are the most expensive clearing, hard-wood and pine lands costing less, with good wood markets at the towns and charcoal furnaces.

There were subject to entry May 1st, 1883, 124,000 acres of government, 431 acres of State swamp, 14,024 acres of primary school, 166,540 acres of Chicago and Northwestern railroad, and 4,221 acres of Lake Superior ship canal land. Unimproved lands near the settlements can be purchased at from $3 to $8 per acre, while improved farms are proportionately higher. "Stump lands" are held at from 50 cents to $2 per acre. A State road traverses the county from north to south, but

is neglected and but little used. It passes through Escanaba, and connects Green Bay with Marquette. Another extends from Days river to Manistique in Schoolcraft county.

Snow falls in November, and averages from three to four feet in depth. The ground freezes quite deep, and spring work can not be begun before May 1st. The schools are in a very creditable condition for a comparatively new county. Lumbering and fishing are the principal industries, although the charcoal business is extensively carried on along the line of the railway. Labor is not in good demand save in the lumber camps. Immigrants with limited means will find this county a good field for agricultural development. The Chicago and Northwestern railroad passes through the county. Escanaba has been and is still the leading iron port in the land. It has a magnificent harbor, and is destined to become one of the leading manufacturing and business centers in Northwestern Michigan.

EATON COUNTY.

Eaton county was organized in 1837. It is bounded on the north by Ionia and Clinton, on the east by Ingham, on the south by Jackson and Calhoun, and on the west by Barry. It has an area of 576 square miles, and had a population in 1880 of 31,225. Charlotte, a flourishing town of about 3,000 inhabitants, is the county seat.

The surface of the county is generally rolling, with small prairies or plains in some parts. Grand river waters the four eastern townships, Battle Creek and its tributaries the central and northwestern towns, and the Thornapple the northern, central, and western towns. The first named streams furnish good water powers.

All varieties of soil may be found. The subsoil is generally clay. The township of Bellevue has a limestone subsoil. In the central parts of the county a gravelly subsoil is found in a few townships.

The timber is principally oak, beech, maple, elm, ash, hickory, walnut, whitewood, and tamarack. The principal crops are wheat, oats, corn, potatoes, and barley. Maple Sugar is made in large quantities. Fruit does well, apples, grapes, and berries of all descriptions being especially successful, while peaches are raised in small quantities. The cost of clearing ranges from $12 to $20 per acre. There are good wood markets in all of the villages, four foot wood bringing from $2 to $3 per cord.

There are no government or State lands of any value in the market. Scarcely any unimproved lands can be had, as such land is retained by farmers for its timber. Improved farms are held at from $30 to $50 per acre. The roads of the county are all good.

Snow falls by December 1st, the average depth during the season reaching 15 inches, the ground freezing to the same depth. Farmers plow in April. The schools are good and rapidly improving. Olivet college, a Congregational institution at the town of the same name, is in a flourishing condition.

Agriculture is the principal industry. There is some lumbering and tie-cutting, also considerable lime burned at Bellevue. There is no special demand for labor, unless perchance in the summer season. The Chicago and Grand Trunk, Grand Rapids division of the Michigan Central, and the Lansing branch of the Michigan Southern railroads cross the county in different directions, affording excellent market privileges.

Eaton county is a rich agricultural county, and most of its inhabitants are thrifty, well to-do citizens.

EMMET COUNTY.

Emmet county was organized in 1853. It is bounded on the north by the Straits of Mackinac, on the east by Cheboygan, on the south by Charlevoix and Little Traverse bay, and on the west by Lake Michigan. It has an area of 414 square miles, and had a population in 1880 of 6,639. Harbor Springs, a beautifully located town of 1,000 inhabitants, is the county seat. Petoskey, a town of 3,000 inhabitants, located across the bay from Harbor Springs, is the most important town in the county. The surface of the county might be termed rolling; there are some townships which are level, others are rolling, while certain portions of the county are very hilly. A large part of the county is well watered by creeks, spring brooks and lakes, while but a small portion is without water. Bear creek, which flows into Little Traverse bay at Petoskey, has fine water powers for some distance back from its mouth. The soil is variable. In some localities will be found a patch of sandy or gravelly loam, with or without clay subsoil, in others a patch of clay loam, alternating with a patch of sandy loam or limestone sand with a sandy subsoil. As a rule,

the soil is very productive in all parts of the county. Sugar maple, beech, birch, hemlock, cedar, pine, elm, ash, and basswood timber is found in quantities throughout the county.

Wheat, and all grain crops, with the exception of some varieties of corn are grown successfully. Early corn does well, as does the late Dent variety. Grass, in nearly all of its varieties, is a productive crop. All root crops also yield bountifully. The county was the abode of Indians up to 1873–4, and fruit-growing is as yet in its infancy. Orchards containing every variety of fruit are being set out in different localities, with every prospect of success. Berries of all descriptions grow in a wild state, and are of a delicious flavor. The timber is generally heavy, and the cost of clearing averages about $20 per acre. The villages afford a fair market for wood.

There were 2,344 acres of government, 4,550 acres of State swamp, 2,773 acres of primary school, and 160 acres of Grand Rapids and Indiana railroad lands, subject to entry May 1, 1883.

Unimproved lands are held at from $3 to $12 per acre, while improved farms range from $15 to $50. There are a few stump lands yet on the market, valuable only for the hard-wood timber yet remaining.

A State road extends from Charlevoix, in Charlevoix county, to Petoskey, thence northeast to Cheboygan; one runs east from Petoskey to Presque Isle county, on Lake Huron; one also runs from Petoskey southeast to Gaylord, Otsego county; another runs from Boyne City, in Charlevoix county, to Clarion, to intersect the last named road, and still another runs from Harbor Springs in an easterly direction to intersect the first named road.

Snow falls by December 1st, the average depth attained during the winter being about 20 inches. The winters are very steady. The ground does not freeze to any depth, and plowing can always be undertaken in April. The schools are new and widely scattered, yet they are steadily improving. Good graded schools can be found at Petoskey and Harbor Springs.

Lumbering is an important industry on the Maple and Carp rivers, also along the Grand Rapids and Indiana railroad. Ties, posts, tan-bark, and telegraph poles, are gotten out in large quantities. The fishing industry is by no means an inconsiderable one; a number of men and boats are employed in this business at Petoskey and Harbor Springs.

Labor is in good demand at all seasons of the year, wages varying from $22 to $30 per month with board. The Grand Rapids and Indiana railroad crosses the county on its way to Mackinac, and a branch extends from Petoskey to Harbor Springs. Little Traverse bay, and the resorts along its banks, have become famous, owing to the wonderful climatic advantages. Petoskey, Bay View, Wequetonsing, Harbor Springs and Harbor Point, are thronged every season with tourists in search of health or pleasure. These towns afford excellent markets for every kind of produce.

GENESEE COUNTY.

Genesee county was organized in 1835. It is bounded on the north by Tuscola and Saginaw, on the east by Lapeer, on the south by Livingston and Oakland, and on the west by Shiawassee and Saginaw. It has an area of 648 square miles, and had, in 1880, a population of 39,220. Flint, a flourishing city of 8,400 inhabitants, is the county seat. The State institution for the Deaf and Dumb is located in the suburbs of this city.

The surface of the county is comparatively level, although a few townships are quite rolling. It is well watered by the Flint and Shiawassee rivers, the Thread and Swartz creeks, and by several smaller streams. Several fine water powers are found in different parts of the county. There are several inland lakes of considerable size, notably Long lake in Fenton township, which is famed for its beautiful shores, and has become during the last few years a pleasure resort of considerable prominence.

The soil of the southern townships is a sandy gravel, such as is usually found in oak openings, with a clay loam on the lower lands. The rest of the county has a clay loam with a clay subsoil in most localities. The timber remaining is mainly oak, beech, maple, elm, and basswood.

Genesee is emphatically a representative county when its grain producing qualities are taken into consideration. Corn, wheat, oats, barley, and in short any grain that can be grown in this latitude, do remarkably well with proper attention. Wheat in particular is regarded as a sure crop, and will average, one year with another, 25 bushels to the acre. The cultivation of fruit has been well tested. Apples are grown and shipped in large quantities. Few peaches are raised, but grapes, cherries, and all sorts of berries grow to great perfection.

There are no government or State lands of any description in the market. Even the pine stump lands have been improved, and are held at from $15 to $25 per acre. Improved farms range from $30 to $100. The roads of the county are all good, the long-constructed State roads being no better than the ordinary township roads.

Snow falls in December, and sleighing often lasts two months. The ground freezes to an average depth of 10 inches. Plowing usually begins by April 1st.

The country and village schools are among the finest in the State. The high school at Flint is one of the few schools from which students are admitted to the University without further examination, and has a very large resident and non-resident attendance.

Lumbering, once the principal industry, is looked upon as a thing of the past, although some logs are now cut in different parts of the county, and considerable sawing is yet done. Agriculture and manufacturing are now the recognized industries. Among its many manufactories are to be noticed extensive wagon works, woolen and cotton mills, charcoal works, machine shops, foundries, flouring mills, shoe, cigar, pickle, and agricultural implement factories, all of which employ a large number of men. Labor is in fair demand on farms during the summer season; but there is usually an over supply of this commodity during the winter months.

The Flint and Pere Marquette, its Otter Lake division, and the Chicago and Grand Trunk railroads furnish the outlets for the marketable productions of this county.

Genesee is rapidly becoming one of the wealthiest counties in the State, and is receiving large accessions to its population annually from all points of the compass.

GLADWIN COUNTY.

Gladwin county was organized in 1875. It is bounded on the north by Roscommon and Ogemaw, on the east by Bay, on the south by Midland, and on the west by Clare. It has an area of 504 square miles, and had a population in 1880 of 1,127. Gladwin, a village of about 100 inhabitants, is the county seat.

The eastern and southern portions of the county are level, while the northern and western parts are quite rolling. The county is well watered by the Tittibawassee, Molasses, Tobacco, and Cedar rivers and their smaller tributaries. There are a number of available water powers on the above streams. Good arable land is found throughout the entire county, although in the northwestern corner and in the eastern center of the county the soil is rather light. The timber is pine, hemlock, cedar, oak, ash, elm, beech, maple, basswood, ironwood, poplar, wild cherry, and butternut. All sorts of crops are raised successfully. The soil is especially well adapted to the raising of clover and timothy. Fruit-growing is as yet in its infancy; all kinds of berries, however, are found in abundance. The cost of clearing averages from $10 to $20 per acre, with only a fair market for wood.

There are no government lands in the market, but there were subject to entry May 1, 1883, 2,066 acres of State swamp, 960 acres of primary school, and 1,600 acres of Flint and Pere Marquette railroad land. Unimproved lands are held at from $5 to $10 per acre. There are large tracts of "stump land" which can be had at a low figure, and are said to be admirably adapted to farming. A State road runs from Midland through this county to Houghton Lake, and thence to Grand Traverse. There is also a State road from Loomis to Gladwin, and one building from Coleman to Cedar. The other roads of the county are mainly new.

Snow falls by December 1st, and may last until April 1st. Every alternate winter less snow falls, and the ground freezes to some depth. Some winter potatoes will keep in the patch.

The schools are as yet widely scattered, but are called good for a new county. Lumbering is the principal industry, and labor is always in good demand in the camps, wages ranging from $20 to $25 per month with board. For immigrants with small means this county offers every inducement. Lands are cheap and productive, society good, and the prospect of a rapid growth very favorable. A logging road has been built by the Flint and Pere Marquette railroad company, extending from Coleman a short distance into Gladwin county. It will eventually reach Cedar.

GRAND TRAVERSE COUNTY.

Grand Traverse county was organized in 1851. It is bounded on the north by Leelanaw and Traverse Bay, on the east by Kalkaska, on the south by Wexford, and on the west by Benzie. It has an area of 612 square miles, and had a population in 1880 of 8,422. Traverse City, situated at the head of Grand Traverse Bay, a town of 2,000 inhabitants, is the county seat. The Northern Asylum for the Insane is beautifully located near the city.

At least two-thirds of the county is quite level, while the remaining third is gently rolling, with a hilly tendency along the shores of the bay and inland lakes. Pine plains are quite extensive along the Boardman river, and cedar swamps (generally reclaimable) traversed by streams of running water, are found in nearly every township. There is good water power on the Boardman river, which is utilized at Traverse City. Half a dozen or more smaller streams furnish power for local saw and grist mills. The soil is principally a sandy loam. There are, however, some tracts of clay and clay loam. The soil of the table land and its declivities is boulder drift of great thickness, in some places being 50 feet in depth, having the same mineral characteristics as that of the surface, except as it is modified by the influence of vegetation and the elements. The timber is mainly sugar maple, beech, basswood, elm, hemlock, pine, and cedar. Wheat, corn, oats, potatoes, clover, timothy, and all varieties of roots do well in this county. Corn in particular does much better than would be expected in so high a latitude.

Grand Traverse is a great fruit county. Apples and grapes are raised on all but the swamp lands, but the more tender varieties of apples need the protection of the bay or of the more elevated situations. Pears, peaches, plums, and cherries are very successful when proper attention is paid to the selection of the site. Thousands of bushels of huckleberries grow on the pine plains, while all other varieties of berries are perfectly at home, either in the field or garden. The famous Parmalee fruit farm on the peninsula is widely known for its great productiveness. As fine peaches and cherries as can be found in Michigan are grown on this farm, and, in fact, all over the peninsula. There is a great demand for the fruit of this county in the Chicago market. The cost of clearing will average $20 per acre, on the heaviest timbered land, with a fair market on the bay shore.

There were about 1,000 acres of government 1,160 acres of State swamp, 1,445 acres of primary school, 520 acres of Agricultural college, and 36,440 acres of Grand Rapids and Indiana railroad land subject to entry May 1. 1883. Good unimproved lands, other than government or State, are held at from $5 to $8 per acre. "Stump lands" have not been in great demand, and can be bought at from 50 cents to $5 per acre, while improved farms bring from $15 to $60 per acre.

A State road runs from Traverse City to Elk Rapids, thence northward to Charlevoix and Petoskey. Another runs southeasterly to Houghton Lake. The roads may be said to be in a fair condition for so new a county. Snow falls in November to an average depth of 2½ feet. The ground usually freezes but little, often not at all. Plowing usually begins in April. The schools are quite numerous, and are very prosperous considering the newness of the county. In some districts the people have voted a tax upon themselves for school purposes greater than all other taxes combined. Lumbering is the principal industry, and labor is in good demand at fair prices. Agriculture and fruit-raising are advancing rapidly, and a speedy development of the resources of the county is near at hand.

There are a number of pleasure resorts along the bays. Traverse City, Elk Rapids, and Old Mission are very popular during the summer season. The Grand Rapids and Indiana railroad has a branch from Walton to Traverse City, and within a year the Chicago and West Michigan railroad will reach the same place. Steamers connect Traverse City with Chicago, Milwaukee, etc., and a shore line touches at all points of interest between Traverse City and Mackinac.

GRATIOT COUNTY.

Gratiot was organized in 1855. It is bounded on the north by Isabella and Midland, on the east by Saginaw, on the south by Clinton, and on the west by Montcalm. It has an area of 576 square miles, and had, in 1880, a population of 21,936. Ithaca, a town of 700 inhabitants, is its county seat. The eastern portion of the county is generally level while the western portion is more rolling.

It is watered by the Pine, Maple, and Bad rivers, and a few smaller streams, with available water power on the Pine only, The soil is a rich sand and gravelly loam, mixed with a clay loam, generally on a clay subsoil. The prevailing varieties of timber are oak, ash, maple, basswood, and elm.

Wheat is the principal crop, although corn, oats, potatoes, and grass find a soil admirably adapted to their growth. The apples, pears, and plums grown in this county are unusually fine. Peaches are not always a sure crop, though in localities very fine peaches have been raised in favorable seasons.

The cost of clearing averages $20 per acre. There is a market for wood in the villages along the railroad, stove wood bring from $1 to $1.25 per cord, and four foot

wood from $1 to $1.75. There is no government lands remaining unsold. There were 240 acres of State swamp, and 840 acres of primary school land subject to entry May 1st, 1883. There are unimproved lands in the market which can be had at from $8 to $15 per acre, according to their distance from the railroads. There are also large tracts of "stump lands" which are held at from $3 to $10 per acre. Wheat is generally successful on these lands. Improved farms range from $20 to $60 per acre, according to location. A State road runs from St. Johns in Clinton county, through Ithaca, to St. Louis. Another one extends from Ovid, through the eastern part of the county, to St. Charles, and still another runs through the western part, from Hubbardston to Mt. Pleasant. The highways generally are in a fair condition.

Snow falls in December, and averages two feet in depth. The ground generally freezes to a considerable depth. Plowing begins by April 1st.

The public schools are in a prosperous condition. The country schools are quite numerous, and the graded schools of the villages are very fine. Lumbering in hard wood is engaged in somewhat extensively. Labor is in good demand on farms, in clearing lands, and in saw mills, etc. The Saginaw Valley and St. Louis railroad runs through the northern part of the county, with a branch from Alma to Ithaca. A railroad from the south will eventually reach Ithaca and St. Louis.

The mineral springs at St. Louis have a world wide reputation and an extensive patronage in all seasons of the year.

HILLSDALE COUNTY.

Hillsdale county was organized in 1835. It is bounded on the north by Jackson and Calhoun, on the east by Lenawee, on the south by Ohio, and on the west by Branch. It has an area of 594 square miles, and had a population in 1880 of 32,723. Hillsdale, a fine town of 3,441 inhabitants, is the county seat. The general surface of the county is undulating, yet in no place is it so hilly as to interfere with easy cultivation. It is well watered, being the source of the following rivers: Raisin, St. Joseph, Little St. Joseph, Kalamazoo, Tiffin, and Grand, and will average two small lakes to each of the 18 townships. There are many small water powers, but none sufficient for heavy manufacturing. The soil of the north half is a gravelly loam mixed with clay, with a gravel and clay subsoil. That of the south half is clay and clay loam, with clay subsoil. The timber is of the following varieties: Oak, hickory, burr oak, black walnut, ash, basswood, maple, beech, white wood, elm, cherry, and tamarack. The principal crops are wheat, corn, potatoes, and grass. All crops usually found in this latitude are successfully grown. Fruit-growing has been well tested by a long experience. Apples, peaches, pears, and the smaller fruits seldom fail of fine crops. Shipping is confined principally to apples, although the drying industry has become a considerable one within the last few years. The cost of clearing will average $15 per acre, with excellent wood markets on every hand. No Government or State land of any description is in the market. But very little unimproved land can be had at any price. Improved farms range from $30 to $100 per acre.

The roads of the county are uniformly good. The seasons are of a good length. Snow falls from Nov. 20th to Dec. 15th, to an average depth of a foot. When no snow falls, the ground freezes to the depth of a foot and a half. Plowing frequently begins by March 20th. The schools all rank high. There are at least 10 graded schools in the county. Hillsdale college at Hillsdale is one of the largest educational institutions in the State. Agriculture is the main industry. Cheese-making is also an important enterprise. There is a good demand for labor on farms by the year, and particularly from early spring until after harvest. The Michigan Southern, its Lansing branch, the Fort Wayne and Jackson, and the Detroit, Hillsdale and Southwestern railroads cross the county in different directions. Few if any counties in the State surpass Hillsdale in privileges of markets, railroads, schools, churches, and all of the surroundings that make a locality a desirable residence.

HOUGHTON COUNTY.

Houghton county was organized in 1846. It is bounded on the north by Keweenaw and Lake Superior, on the east by Baraga and Keweenaw bay, on the south by Marquette, and on the west by Ontonagon. It has an area of about 800 square miles, and had in 1880 a population of 22,473. Houghton, a town of 3,500 inhabitants, is the county seat. Hancock, situated directly opposite Houghton, on the Portage river, and Calumet, in the northern portion of the county, are both important mining towns. The great copper range, which extends through the county from south-

west to northeast, is from three to five miles wide, and is somewhat elevated above the surrounding country. The land slopes from the range either way, and is gently undulating or rolling, It is well watered by a large number of streams, and by an occasional inland lake. The soil is a sandy loam with a clay subsoil. The timber is sugar maple, birch, pine, hemlock, cedar, tamarack, spruce, black ash, and basswood. The principal crops are hay, oats, potatoes, barley, and all root crops. Winter wheat does well where attempts are made to raise it; 40 bushels to the acre having been raised on some farms. There have been no mills erected for grinding wheat, hence no great effort has been made towards its production. Hay averages $25 per ton, oats 45c per bushel, butter 40c per pound, and potatoes 75c to $1.50 per bushel.

All small fruits do well, strawberries particularly growing in abundance. There is a good home market for everything that can be raised by the farmer. The cost of clearing averages $5 per acre, the hard-wood cut bringing from $3 to $4 per cord, soft wood $2.75.

There were subject to entry May 1, 1883, 52,600 acres of government, 12,407 acres of primary school, 55,218 acres of Lake Superior ship canal, and 8,000 acres of St. Mary's Canal Company's land.

Good unimproved lands are held at from $3 to $7 per acre. Fine agricultural lands, heavily timbered, can be bought for $5 per acre, within four or five miles of the markets. Thousands of acres of "stump land" can be bought at from 50c to $1 per acre. These lands have a good soil and good hard-wood timber. The pine has been cut off. They are located within 10 miles of good sized towns, and afford great inducements to colonists. The county road runs northeasterly through Keweenaw county, connecting with all of the principal towns, and southeasterly through Ontonagon county, and south 35 miles to L'Anse, connecting with the Marquette, Houghton and Ontonagon railroad.

Snow falls about November 1st, to an average depth of two or three feet, the ground seldom freezing. The snow disappears by the last of April, and plowing begins by the 10th of May. The schools are in a good condition, and $60,000 is expended annually for school purposes. The principal industries are mining, lumbering, and fishing. Wood-cutting is engaged in to some extent. There is always a good demand for labor, miners receiving on an average, $50 per month, laborers $40. The Sturgeon river valley offers special inducements to settlers, as land is very good and very cheap.

Some of the finest copper mines in the world are located in this county. The famous Calumet and Hecla, Quincy, Atlantic, Pewabic, and Franklin mines are among this number. A canal has been constructed across the county from Portage Lake to Lake Superior, which shortens the distance to the western Lake Superior ports by 100 miles.

HURON COUNTY.

Huron county was organized in 1859. It is bounded on the north by Saginaw Bay and Lake Huron, on the east by Lake Huron, on the south by Tuscola and Sanilac, and on the west by Tuscola and Saginaw Bay. It has an area of 756 square miles, and had in 1880 a population of 20,089. Bad Ax, a town of about 400 inhabitants, is the county seat.

The greater part of the county is a table land, rising from the lake and bay shores to the center of the county, it being 168 feet higher at Bad Axe than at Port Austin on the shore. There are some hilly lands in Bingham and Verna townships. The Black, Cass, Pigeon, Willow, and Pinnepog rivers with their tributaries water the county, but furnish no water power of any consequence. The soil is a uniform clay loam with clay subsoil. There is, however, a strip of sand about a mile in width through the towns of Oliver and Grant. Owing to the fact the county has been burned over, very little green timber is left. In the western tier of towns there is considerable beech, maple, birch, cedar, and hemlock timber. Fall wheat is the principal crop of the county. Grass crops cannot be excelled, and clover never fails. All spring crops do well. Corn has not been thoroughly tested in all parts of the county, but does well wherever it has been planted and properly cared for. All kinds of fruit grow in abundance. The Huron county fruits come into market after the lower county fruits fail, thus causing a steady demand for all that can be furnished.

The cost of clearing ranges from $7 to $15 per acre, the burnt wood bringing $1.00 per cord at the salt works all along the shore, and at the grist mills and Lake Huron grind-stone quarries. The government and State lands are all taken up, with the exception of about 620 acres of primary school lands.

Good lands can be bought at from $6 to $20 per acre. Land easily cleared, and free from stumps, brings $10 per acre, Much of "burnt lands" can be bought for $10 per acre. This can be cleared ready for the plow for $7. The forest fires are said to have enhanced the value of the land in Huron county at least three fold. State roads traverse the county in every direction, and connect all of the villages in the county. Snow falls early, and the winters are very even. Spring is two or three weeks later than at Detroit. It is never as cold in winter, or as warm in summer, as in the counties further south.

The schools in the villages are remarkably good for a new country. Those which were burnt during the late forest fires, have been for the most part rebuilt, as well as many new ones. The principal industries are agriculture, the manufacture of salt, and brick making. The grind-stone quarries are operated extensively, employing a large number of hands. Labor is always in fair demand, $1.50 per day being the average price paid the common laborer. There are four railroads entering the county; a narrow guage from East Saginaw to Sebawaing, a narrow guage from Port Huron to Sand Beach, a wide guage from Pontiac to Caseville, and a narrow guage from Palms station to Port Austin. There are several harbors along the lake shore, admitting vessels of all sizes, the celebrated harber of refuge at Sand Beach being worthy of mention, as a most successful engineering enterprise.

INGHAM COUNTY.

Ingham county was organized in 1838. It is bounded on the north by Clinton and Shiawassee, on the east by Livingston, on the south by Jackson, and on the west by Eaton. It has an area of 576 square miles, and had a population in 1880 of 33,676. Mason, a town of 1,800 inhabitants, is the county seat. Lansing, the capitol of the State, a city of 8,319 inhabitants, is located in the northwestern part of the county. The State School for the Blind, the Reform School for Boys, and the State Agricultural College are also located in and about Lansing.

The surface of the country is gently rolling, just enough so as to furnish fair drainage. It is watered mainly by the Cedar river, although the Grand enters the county on its western border and flows through Lansing township and city. There are good water powers at Lansing on the Grand, and at Okemos on the Cedar rivers. The soil on the original oak openings is somewhat sandy, while on the timbered lands it is a clay or black loam, with clay subsoil. The prevailing varieties of timber are beech, maple, ash, oak, elm, basswood, and tamarack. Wheat is the staple crop, although the soil of this county is well adapted to grass, corn, and oats. In fact all grains and vegetables do well with the exception of barley. All fruits usually raised in this latitude are found in Ingham county. Large quantities of apples are annually shipped to the Chicago market.

The cost of clearing ranges from $10 to $20 per acre, with good wood markets in every direction. There are no government or State lands in the market, with the exception of 400 acres of school land, which was subject to entry May 1st, 1883. The unimproved lands are held by the owners of improved farms for the timber, and are valued at from $10 to $25 per acre. There are two State roads which were built many years ago, and which are kept in good order. A fine plank road was built from Lansing to Detroit, which is now one of the best thoroughfares in the country. The ground freezes by Nov. 15th, and remains frozen until April 1st. Snow falls about Dec. 1st, but the sleighing is by no means continuous. Spring work generally commences by April 1st. The schools are all good—those of the villages and larger towns particularly so. At Lansing there is a fine high school, which would be a credit to any city in the land. The principal industries are agriculture and manufacturing. Lansing has of late become quite a manufacturing city. There are extensive agricultural implement and engine works at this place, while at Williamston and Webberville the manufacture of barrel heading, staves, etc., is extensively engaged in. Common labor is in fair demand, particularly during the warm seasons.

The Chicago and Grand Trunk railroad, Detroit, Lansing and Northern, Jackson, Lansing and Saginaw, Lansing branch of the Michigan Southern, and the Grand Rapids branch of the Michigan Central all traverse the county in different directions, placing every township in the county within easy reach of the best markets.

IONIA COUNTY.

Ionia county was organized in 1837. It is bounded on the north by Montcalm, on the east by Clinton, on the south by Eaton and Barry, and on the west by Kent. It has an area of 576 square miles, and had a population in 1880 of 33,872. Ionia, a city

of 4,190 inhabitants, is the county seat. The State House of Correction is located within a mile of this town. The southern and eastern portions of the county are level except when broken by streams. The remaining portions are more or less undulating, There are some abrupt hills bordering the valleys of the Grand, Maple, and Platte rivers and their tributaries, which water the county, and furnish excellent water power in nearly every township. The soil on the uplands varies from a stiff clay to a light sand, with a subsoil of clay, sand or gravel. Alluvial flats are found all along the streams. Nearly all kinds of timber are found, though oak, maple, and beach predominate. The principal crops are grass, wheat, corn, oats, and buckwheat. Potatoes, beans, peas, rye, barley, and roots of all kinds are grown in abundance. Apples, pears, peaches, grapes, plums, cherries, strawberries, etc., grow to great perfection. Apples are shipped every season to the north and west in large quantities. The cost of clearing averages $15 per acre. The city of Ionia and the several villages of the county furnish good wood markets, 18-inch wood bringing from $1.50 to $2.00 per cord. There are no government, State, or railroad lands of any description in the market. Unimproved lands are generally held for the timber, and improved farms range from $35 to $1.00 acre. There are uniformly good roads on nearly every section line. The climate of the county is very similar to that of the other counties in this latitude, the winter seasons being the most variable. The privileges of schools and churches are unexcelled. The principal industries are agriculture and light manufacturing.

Labor is in fair demand, particularly on farms during the summer season, wages ranging from $18 to $25 per month with board.

The Detroit, Grand Haven and Milwaukee railroad, the Detroit, Lansing and Northern, and its Big Rapids branch, traverse the county.

IOSCO COUNTY.

Iosco county was organized in 1857. It is bounded on the north by Alcona, on the east by Lake Huron, on the south by Arenac (the new county formed from the north part of Bay), and on the west by Ogemaw. It has an area of 540 square miles, and had a population in 1880 of 6,873. Tawas City, a town of 1,000 inhabitants, is the county seat. The surface of the county is gently rolling, and is watered by the Au Sable, the Au Gres, the Tawas, and numerous creeks, inland lakes, and spring brooks. Most of these streams afford a fair water power. There is considerable swamp land timbered with cedar or ash, nearly all of which is reclaimable. About one-tenth of the county is a sandy plain. On the uplands the soil is mostly a sandy loam with clay subsoil. There is very little stiff clay. On the lowlands the soil is entirely muck with clay or sand subsoil. On the plains the soil is very light, but is well adapted to grazing purposes. The timber is pine, hemlock, beech, maple, black and white ash, cedar, and some tamarack.

On the tillable lands, wheat, oats, rye, peas, beans, potatoes, etc., are grown very successfully. Rye and grass do well on the sand plains. Potatoes yield from 100 to 400, and onions from 400 to 600 bushels to the acre. All the hardier varieties of apples do well, and plums and cherries grow to great perfection, no trouble being experienced from insects. The home markets consume all the fruit that has yet been produced in this county.

It costs about $20 per acre to clear the timbered lands, with fair wood markets at the villages along the Tawas and Bay County railroad, hard wood averaging $2.50 per cord. There were 28,000 acres of government, 13,109 acres of State swamp, 5,004 acres of primary school, and 26,874 acres of Agricultural college land subject to entry May 1st, 1883. Good unimproved lands, with all of the timber standing, excepting the pine, can be had at from $3 to $10 per acre. There are also thousands of acres of "burnt lands" of good quality of soil, on which all the timber has been destroyed, which were held at from $3 to $5 per acre. The "stump lands" from which white pine has been cut are good farming lands, and the prices range as above, while the stump lands from which the Norway pine alone has been cut are considered as second rate, and of no value for farming purposes. The Iosco and Ogemaw State road runs through the center of the county from east to west, and connects Tawas City with West Branch. The highways generally are new but quite numerous, and the county is well opened up by them.

Snow falls by Nov. 15th, and attains an average depth of 12 inches. The ground seldom freezes more than eight inches, unless the snow fall is light. Plowing begins by April 15th.

The public schools, particularly those along the shore, are in a good condition, great care being taken that a high standard shall be maintained.

Lumbering is the main industry. Ties, telegraph poles, and posts are cut in large quantities. The manufacture of salt and plaster is also extensively engaged in. Labor is in good demand, and the demand will increase as the county develops. The Tawas and Bay County railroad crosses the county, connecting Tawas with the Mackinac division of the Michigan Central railroad. There is another railroad projected along the shore, viz.: the Bay City and Alpena. The county has forty miles of coast line and several good harbors. During the season of navigation there is a large amount of shipping to and from these shore towns, steamers from Bay City and Alpena arriving daily.

ISABELLA COUNTY.

Isabella county was organized in 1859. It is bounded on the north by Clare, on the east by Midland, on the south by Gratiot and Montcalm, and on the west by Mecosta. Mt. Pleasant, a town of 2,000 inhabitants, is the county seat. It has an area of 576 square miles, and had in 1880 a population of 12,159. The eastern and northeastern portions of the county are comparatively level. The remaining portions of the county are quite rolling, though not hilly. It is watered by the Chippewa and Salt rivers, together with numerous smaller streams and brooks. The soil is somewhat varied, a black sandy loam interspersed with yellow sand predominating. The subsoil is generally of clay.

The following varieties of timber are found in large quantities: Maple, beech, pine, hemlock, oak, cedar, white and black ash, rock and salt elm. Winter and spring wheat, barley, oats, corn, rye, potatoes, hay, timothy and clover, all do well in this county. All garden vegetables also grow in abundance. Apples, cherries, plums, grapes, some varieties of peaches and pears, are generally successful. There are some orchards containing 600 or 700 trees.

The cost of clearing will average from $10 to $15 per acre, according to the amount of timber to be taken off. There are no government lands in the market. There were 520 acres of primary school, and 4,500 of Flint and Pere Marquette railroad land subject to entry May 1, 1883.

Good unimproved lands can be had near the stations for from $12 to $15 per acre. When located back in the county, they bring from $6 to $12. The "stump lands" are, with the exception of a few tracts, well adapted to farming, and range in price from $1 to $10 per acre. There is a State road from St. Louis to Mt. Pleasant, also one from Alma, one from Midland, one from Clare, and one from Big Rapids to Mt. Pleasant. There is still another from Millbrook to Farwell.

Snow falls by November 15th, and spring opens by April 15th. The ground freezes quite deep, particularly when the snow fall is light.

The schools of the county are unexceptionally good. The public school at Mt. Pleasant is a credit to the town and county, and has a large non-resident attendance.

There are about 20 saw mills in the county, five or six grist mills, and mills adapted to other purposes. Ties, telegraph poles, and posts are gotten out in large quantities. Agriculture, however, is the coming industry.

Labor is always in good demand. The Flint and Pere Marquette, its Mt. Pleasant branch, and the Detroit, Lansing and Northern railroads enter the county at different points, affording good markets for everything that is offered for sale.

ISLE ROYAL COUNTY.

Isle Royal county was organized in 1875. The county comprises Isle Royal and the islands adjacent. It is located in the northwestern part of Lake Superior. It has an area of 252 square miles, and had a population in 1880 of 55 inhabitants. Minong, a lake port near the upper extremity of Isle Royal, is the county seat. The surface of the country is mountainous, with large-sized swamps at intervals. The land is so rocky that the soil is practically valueless. The timber is mainly a light, scrubby bush maple, balsam, spruce, and cedar. No crops or fruit have been raised on these islands. On May 1st, 1883, there were 14,640 acres of government, 3,787 acres of State swamp, and 3,876 acres of primary school land subject to entry. The winters are six months in length, and snow falls to a depth of five feet. Mining enterprises have been attempted with but little success.

What is pronounced by government engineers, and proved not only by scientific but by practical test, to be the best curbing and paving stone in the United States—superior to the Medina sandstone or any of the granites—exists in unlimited quantity on Siscowit point, Isle Royal. This stone can be laid down on the docks of any of the lake cities at a cost not much in excess of half the amount which is being paid

for the paving material now being used in Chicago and other lake cities, and an effort will shortly be made to organize a company for the purp se of opening a quarry.

There are also good fishing grounds in among the islands. Steamers call at the lake ports quite frequently during the summer season.

JACKSON COUNTY.

Jackson county was organized in 1832. It is bounded on the north by Ingham and Eaton, on the east by Washtenaw, on the south by Hillsdale and Lenawee, and on the west by Calhoun. It has an area of 720 square miles, and had, in 1880, a population of 42,031. Jackson, a flourishing city of 16,105 inhabitants, is the county seat. The surface of the county is quite rolling, and in one or two townships it is even hilly. The Kalamazoo, Raisin, and Grand rivers are fed by the springs and small lakes in this county. The county is well-watered by these and other streams, with good water powers at Jackson, Concord, Brooklyn, and other places. The county is high above the level of the great lakes, and there is excellent drainage in every township. The highest point of land on the Michigan Central railroad is on the eastern line of this county. The soil varies from a sandy loam to a strong clay, and is well adapted to grains and fruits.

The timber remaining is of white, red, black, and burr oak, hickory, elm, maple, and ash. Uniform success has attended good farming in all parts of the county. All kinds of cereals yield abundantly, and the reclaimed marshes produce enormous crops of vegetables. The cultivation of fruits has been thoroughly tested with the best of results. Apples do well on alternate years. Peaches are uncertain, but all other fruits peculiar to this climate are annually produced in large quantities. The unimproved lands are generally held for the timber. Wood brings a high price in the Jackson market, oak averaging $4.50 and maple $5.50 per cord. These unimproved lands are held at from $15 to $40 per acre. Improved farms bring a high figure, ranging from $50 to $100 per acre. There are no government or State lands in the market with the exception of 80 acres of State swamp, and 400 acres of primary school land which was subject to entry May 1st, 1883. The roads of the county are all good. The climate is a variable one, snow falling anywhere from Nov. 1st to Jan. 1st, and generally averaging from six to ten inches in depth. The ground usually freezes early to a depth ranging from six to twenty inches. Spring work commences by April 1st.

The public schools are in an excellent condition, and are well attended. The principal industries are agriculture, coal mining, lime burning, and the manufacturing of implements and machinery of all sorts. Two large corset manufactories at Jackson give employment to over 300 operatives. The Michigan Central shops in Jackson also employ a large number of hands. The State Prison, located at the same place, creates a large demand for material and labor. Labor is always in good demand throughout the county. Jackson is a great railroad center. The following railroads enter the county at different points, most of them centering at Jackson: The Michigan Central, its Air Line, its Grand Rapids branch; the Detroit, Hillsdale and Manchester; the Lake Shore and Michigan Southern, and the Fort Wayne, Jackson and Saginaw.

With its productive soil, its fields of coal and fire clay, and its splendid opportunities for manufacturing, Jackson county must become one of the richest and most important counties in the State.

KALAMAZOO COUNTY.

Kalamazoo county was organized in 1830. It is bounded on the north by Allegan and Barry, on the east by Calhoun, on the south by St. Joseph, and on the west by Van Buren. It has an area of 576 square miles and had, in 1880, a population of 34,342. Kalamazoo, a city of 13,000 inhabitants, is the county seat. The surface of the county is gently rolling, those lands lying on the streams being somewhat broken and hilly. It is watered by the Kalamazoo and Portage rivers, and other streams of lesser magnitude, with here and there a small inland lake. Good water powers are found in the first named rivers, and at the outlet of Gull Lake, near Yorkville. There is more prairie land in this county than in any other county in the State. All varieties of soil are found, the white oak or clay soil predominating, with a subsoil of gravel and clay, forming a cement which is impervious to water. The prevailing varieties of timber are oak, maple, beech, butternut, hickory, walnut, and whitewood. Wheat, corn, and oats are the three great staples. Barley, and all kinds of hay do well,

while garden vegetables, particularly celery, are produced in large quantities for foreign markets. The Hollanders have done a great deal towards reclaiming the swamps, and are now reaping substantial benefits from their labors. Apples are the principal fruit raised, but peaches, grapes, and the smaller fruits are grown successfully. The Chicago market consumes the surplus productions of the county. The cost of clearing will average $25 per acre, with convenient markets for the sale of wood at any of the railroad stations; $5 per cord being the average price for hard-wood four feet in length. No government or State lands remain in the market. Unimproved timbered lands are very scarce, and are usually held for the timber, which is very valuable in an old settled county. Improved farms vary from $25 to $100 per acre. Snow falls by December 1st, and the ground freezes to a considerable depth, depending upon the fall of snow. Spring work begins very early, plowing often commencing in March. The schools of the county are very fine, at Kalamazoo the high school, Kalamazoo college, and the Michigan female seminary afford every possible opportunity for educational advancement, and are largely patronized.

The Michigan asylum for the insane is located within a mile of Kalamazoo.

The principal industries are agriculture, and the manufacturing of agricultural implements, carriage and car springs, sash, doors, and blinds, wind-mills, flour, caskets, buggies, machinery, cement, furniture, canned fruit, evaporators, etc.

Labor is always in fair demand. The Michigan Central railroad, its South Haven branch, the Grand Rapids and Indiana, and the Lake Shore and Michigan Southern traverse the county in every direction.

KALKASKA COUNTY.

Kalkaska county was organized in 1871. It is bounded on the north by Antrim, on the east by Crawford, on the south by Missaukee, and on the west by Grand Traverse. It has an area of 576 square miles, and had, in 1880, a population of 2,937. Kalkaska, a village of about 1,100 inhabitants is the county seat. The surface of the county is quite rolling with a tendency to hilliness near the inland lakes. The entire county is well watered by the Manistee and its branches, which finds its fountain head in the northeast portion of the county, the Boardman, Torch, and Rapid rivers, and numerous spring brooks, and small lakes. The streams originating from springs of clear and cold water swarm with speckled trout, affording delicious food, and rare sport. There are a few pine plains along the Boardman river, which are skirted with good pine and hemlock lands. There is also considerable cedar swamp land, nearly all of which is reclaimable. There are several good water powers in the county, well located for manufacturing purposes. The soil is generally of a rich sandy loam, with fine limestone intermixed, and in places a gravelly loam. Unimproved lands, heavily timbered, can be had from $5 to $8 per acre. The soil on the "stump lands" is very uneven. Some of it produces well, but a great portion of it has been regarded as practically valueless. This land can be had at from 50 cents to $5 per acre. A State road runs from Acme to Williamsburg in Grand Traverse county and thence across the county to Fredericksville, Crawford county. The county roads are uniformily good. The first snow falls from Nov. 15th to Dec. 1st. The ground never freezes here, and plowing can begin early in April. Cattle find their support in the woods as soon as the snow leaves.

The schools are in a very creditable condition. Lumbering, the cutting of ties, posts, and telegraph poles, charcoal burning, and agriculture, are the main industries, and labor is always in good demand. The Grand Rapids and Indiana railroad crosses the county from south to north. Kalkaska county offers to the industrious immigrant with limited means, every possible advantage, and the indications are that the opportunities offered will not be lost, as the next five years will witness a rapid development of the entire county.

Sugar maple, beech, elm, basswood, hemlock, cedar, birch, and pine timber is found in large quantities throughout the entire county. Wheat, oats, corn, rye, millet, barley, clover, and potatoes, and in fact all root crops, yield bountifully. The early varieties of flint and dent corn are planted with gratifying results. In the older portions of the county fruit growing has been tested thoroughly, and all fruits with the exception of peaches, which are an uncertain crop, do well. Berries of all sorts abound.

The cost of clearing averages from $15 to $20 per acre, with good markets for hard wood at the railroad stations and at the docks on the lakes. There were 4,600 acres of government, 1,836 acres of State swamp, 3,886 acres of primary school, 1,240 acres of Agricultural college, 76,161 acres of Grand Rapids and Indiana, and 10,360 acres of Jackson, Lansing and Saginaw railroad lands subject to entry May 1st, 1883.

KENT COUNTY.

Kent county was organized in 1836. It is bounded on the north by Newaygo and Montcalm, on the east by Montcalm and Ionia, on the south by Barry and Allegah, and on the west by Ottawa and Muskegon. It has an area of 864 square miles, and had a population in 1880, of 73,252. Grand Rapids, the second city in size in the state, having 40,000 inhabitants, is the county seat.

The northern portion of the county is quite level. The remaining portions are gently rolling, with high bluffs along the Grand river. The county is watered by the Grand, Thornapple, Flat and Rouge rivers, and their tributaries. All of these rivers furnish a large amount of available water power, the Grand at Grand Rapids affording one of the largest and best powers in the State, there being 17 feet fall within the city limits. There is a substantial dam at the head of the rapids, and a canal nearly one-half a mile in length on both sides of the river, with level banks to build on; making the power available at a small expense to each party using it. There is some light sandy soil in the northern part of the county, and a few sections in the southwestern part have a similar soil. The soil of a large portion of the county is a gravelly loam with a clay subsoil. The timber is principally white and red oak, beech, maple, black and white ash, black walnut, hickory, butternut, bass wood, pine, and cherry. Wheat, corn, oats, potatoes, barley, hops, rye, hay, and garden vegetables, are grown in large quantities. The Grand Rapids market is supplied mainly from the productions of the county. Kent county is on the eastern line of what is known as the Michigan fruit belt, and every fruit peculiar to this climate is raised successfully in this county.

The cost of clearing averages from $10 to $15 per acre. There are good markets for all of the surplus wood at any of the railroad points, particularly at the mills and factories in Grand Rapids. There are no government or State lands in the market. In the northern part of the county there are still some good unimproved lands, which are generally held at a high price on account of the timber. Such lands range from $20 to $50 per acre. Improved farms are proportionately higher.

Snow falls in November, and good sleighing is looked for by Christmas, at which time the average depth is from 6 to 10 inches. Spring work generally begins by the latter part of March. The proximity to the lake renders the climate of this county milder in winter and cooler in summer than counties located in the interior of the State.

The schools are all good, the public schools and the business colleges at Grand Rapids sustaining a high reputation. The principal industries are agriculture and manufacturing. Labor is in fair demand. Mechanics, in particular, are always likely to find work at the factories. The furniture manufactories, and the plaster produced at Grand Rapids have a world wide reputation. Grand Rapids is a great railroad center. The Detroit, Grand Haven and Milwaukee railroad, the Grand Rapids and Indiana, the Chicago and West Michigan, the Grand Rapids division of the Michigan Central, and the Grand Rapids division of the Lake Shore and Michigan Southern, enter the county at different points, all centering at Grand Rapids.

KEWEENAW COUNTY.

Keweenaw county was organized in 1861. It is bounded on the north, east and west by Lake Superior, and on the south by Houghton. It has an area of 360 square miles, and had, in 1880, a population of 4,270. Eagle River, a village of 500 inhabitants, is the county seat. The county is traversed by two ranges of hills, known as the north and south range. On the slopes of these ranges are heavy growths of timber, while between the ranges the land is swampy. It is subject, however, to drainage, and furnishes excellent pasturage. The county is watered by a number of small streams flowing from the hills to the lake, and some of them furnish small water powers. The timber is principally beach, maple, pine, spruce, balsam, tamarack, ash, cedar, and occasionally black oak. The soil is light, and when first cultivated yields fair root crops, after which it will produce hay for a few seasons. Garden vegetables do well in the valleys, and potatoes yield bountifully. Strawberries of fine size and flavor are grown to a considerable extent. Fruits generally are not successfully cultivated. The cost of clearing averages $30 per acre, and the wood cut finds ready sale among the mines or at the docks along the lake.

There were 3,500 acres of government, 2,083 acres of primary school, 240 acres of Lake Superior Ship Canal, and 5,000 acres of St. Mary's Canal company land subject to entry May 1st, 1883. There are some unimproved lands from which the pine alone

has been cut, but their timber as yet is of little value, owing to their distance from the markets.

There are good roads throughout the settled portions of the county. The seasons are well defined, there being fully six months of winter, and six months of warm weather, with a very even temperature. The ground does not freeze in winter owing to the depth of snow. The schools in this county are said to be excellent. The principal industries are lumbering, the cutting of ties, posts, and telegraph poles, fishing, and mining. Labor is always in good demand, high wages being paid to the right sort of men.

There are no railroads, as yet, in the county, but the largest vessels call at several of the lake ports during the summer season, affording every opportunity for the commercial transactions of the county.

LAKE COUNTY.

Lake county was organized in 1871. It is bounded on the north by Manistee and Wexford, on the east by Osceola, on the south by Newaygo, and on the west by Mason. It has an area of about 576 square miles, and had a population in 1880 of 3,233. Baldwin, a village of 300 inhabitants, is the county seat.

The surface of the county is level or gently rolling. There is some swamp land which is nearly all reclaimable; also large tracts of sandy land, most of which is tillable. The county is well watered with springs, spring streams, and lakes. The head waters of the Pere Marquette, Pine, Sauble, and Manistee rivers are within the borders of the county. Excellent water power is found at a number of points. The soil on the sand plains is of red and yellow sand, with no subsoil. The prevailing soil on the beech and maple lands is generally of a loamy, gravelly nature with clay subsoil. The timber is pine, hemlock, beech, maple, rock elm, ash, cherry, oak, white cedar, basswood, birch, tamarack, and spruce. Wheat, potatoes, corn, buckwheat, ruta bagas, millet, vines of all descriptions, beans, peas, rye, timothy, and clover,—in fact all crops peculiar to this latitude,—are raised in Lake county. Apples, pears, plums, grapes, and the smaller fruits do well. Many young orchards are just beginning to bear. The cost of clearing averages $20 per acre on the heavily timbered lands, while on the plains the cost will average from $5 to $10. The wood produced finds a ready market at the railroad stations, and at the charcoal kilns at Luther. The railroad companies buy all of the ties and posts which are offered. There were 3,000 acres of government, 406 acres of State swamp, 3,888 acres of primary school, 24,000 acres of Flint and Pere Marquette railroad, and 35,178 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883. Unimproved lands are held at from $3 to $10 per acre, while improved farming lands range from $3 to $25 per acre, according to location and improvements. Hard wood is rapidly rising in value, as there is a great foreign demand. There are large tracts of "stump lands," also of "plains land," ranging in price from 50 cents to $5 per acre, which eventually will make good agricultural lands. There are no State roads, but the county roads are uniformly good for a new county.

Winter sets in by Nov. 15th. Snow falls to an average depth of two and one-half feet, the ground rarely ever freezing. Plowing begins in April.

The schools are comparatively few, but good, and every effort is being made to elevate their standard.

There are probably 40 lumber and shingle mills in the county. There are also large charcoal and chemical works at Luther. Ties, posts, and poles are gotten out in large quantities. Labor is always in good demand, particularly in the lumbering districts, wages averaging $23 per month with board. The Flint and Pere Marquette railroad traverses the county from east to west, and a branch of the Grand Rapids and Indiana runs from Milton Junction to Luther. There are several logging roads in the county of from four to ten miles in length. The lands held by the railroads are for sale on time, at prices within the reach of every one. The immigrant should not overlook Lake county, as it affords excellent opportunities to men with limited means.

LAPEER COUNTY.

Lapeer county was organized in 1835. It is bounded on the north by Tuscola and Sanilac, on the east by Sanilac and St. Clair, on the south by Macomb and Oakland, and on the west by Genesee and Tuscola. It has an area of 666 square miles, and had, in 1880, a population of 30,138. Lapeer, a city of 3,000 inhabitants, is the county seat. The surface of the county is quite rolling, with very little swamp land. It is well watered by rivers and spring brooks. There is little available water power except

for light work. The soil varies in the different townships from a sandy loam to a clay loam. The subsoil is invariably clay. The prevailing varieties of timber are beech, maple, ash, hickory, elm, and walnut.

The principal crops are winter wheat, corn, oats, potatoes, clover and timothy. Apples, pears, plums, and grapes succeed well; peaches only in favorable localities, and in favorable seasons. The small fruits and berries grow in abundance, and good markets are found at the railroad stations for all the surplus fruit. The cost of clearing averages from $3 to $15 per acre, according as the timber has been burned off, with a good wood market at the mills and machine shops in Lapeer, and along the line of the railroad. There are no government or State lands of any value in the market.

There is considerable unimproved land, with the pine and oak cut off, which can be had at from $5 to $15 per acre. The soil is of good quality, well adapted to agriculture. The "stump lands" also have a good soil, and are rapidly being taken up. Improved farms range in price from $20 to $80 per acre.

There are three State roads running north and south; one from Imlay City to the forks of Cass river, one from Attica to Cass river, and one from Lapeer to Lexington, via North Branch. The county roads are generally in a good condition.

Snow falls in November, but no sleighing is looked for before Christmas. The average depth is about a foot. When the fall of snow is light, the ground freezes to an average depth of two feet. Spring plowing begins from the 20th of March to the 1st of April.

The schools and school buildings of Lapeer county are all good. Agriculture is the principal industry, though lumbering, charcoal burning, and the getting out of ties, posts, and telegraph poles, is carried on to a considerable extent.

Labor is in fair demand, particularly on farms during the summer season. Farm labor brings from $16 to $20 per month with board. From $20 to $26 per month is paid in the lumber camps.

The Chicago and Grand Trunk, the Detroit and Bay City, its branch to Five Lakes, the Almont branch of the Port Huron and Northwestern, and the Pontiac, Caseville and Port Austin railroads enter the county at different points. The Otter Lake extension of the Flint and Pere Marquette, and the Port Huron and Northwestern, also touch the borders of the county, hence the farmer can find good markets in any direction, for anything he may have for sale.

The numerous railroad facilities found within the borders of this county offer special advantages to many kinds of manufacturing enterprises, and there is every prospect that Lapeer will have its full quota of factories at no distant date.

LEELANAW COUNTY.

Leelanaw county was organized in 1863. It is bounded on the north and west by Lake Michigan, on the east by Grand Traverse bay, and on the south by Benzie and Grand Traverse. It has an area of 360 square miles, and had a population in 1883 of 6,253. Leland, a growing village of about 300 inhabitants, is the county seat.

The entire county is a peninsula lying between Traverse bay and Lake Michigan. The surface of the country is quite rolling. There are two ridges lying in the same direction as the bay, and varying in altitude from a water level to 482 feet. Between these ridges are a few cedar swamps which are reclaimable, with the exception of the swamps at the head of Carp Lake. There are a few sandy plains of no considerable extent.

The county is watered by Carp Lake, Carp river, and several smaller streams and lakes. There is a fine water power at the mouth of Carp river, there being a fall of about eight and one-half feet. Other water powers are found on the rapid streams in the interior of the county.

The soil is a dark sandy loam of remarkable uniformity, easily worked, with a gravelly subsoil. There are, however, patches of clay soil in every township. The timber is principally beech, maple, elm, ash, hemlock, birch, cedar, and basswood. Wheat, rye, and oats are the most successful of the grains. The quality of potatoes and nearly all garden vegetables cannot be surpassed. The entire county furnishes what are known as "Traverse Bay" potatoes, which command an extra price in the Chicago market. The orchards are new, and but little surplus fruit is raised. Peaches, pears, apples, plums, and cherries do well wherever proper attention is paid to their cultivation. The cost of clearing will average from $10 to $20 per acre. There are good wood markets at the Leland Iron Company's furnace at the mouth of Carp river, and at all points where the steamers land. Shipping wood brings

$2.50 per cord, and the wood used at the furnace brings from $1.30 to $1.50 per cord. There were 2,900 acres of government land in the market May 1st, 1883. There were also 804 acres of State swamp, and 1,421 acres of school land subject to entry on the same date. There are plenty of good, unimproved hardwood lands which can be had at from $4 to $10 per acre. They are all within a few miles of water shipping points, and the southern portions of the county find an outlet via the Grand Rapids and Indiana railroad at Traverse City. The "stump lands" are really of more value to the settler than the timbered lands, as they have been practically cleared, and the soil is of a superior character. They are held at from $5 to $10 per acre. There are two State roads, viz.: the Northport and Newaygo road, running in a southerly direction through Sutton's Bay and New Mission to Traverse City, and the Northport, Leland and Frankfort road, leading southwestward to Manistee. The county is also well opened up by the local roads which are generally in a fair condition. Snow falls late in November to an average depth of one foot. The ground does not freeze to any depth, and spring work generally begins by April 1st. The summer months are tempered by the lake breezes, and the climate is usually delightful from May to November.

The district and village schools are generally well attended and well kept. The principal industries of the county are hard-wood lumbering, charcoal burning, the cutting of ties, posts, poles, hemlock bark, and agriculture. The iron furnace at Leland consumes a million of bushels of charcoal annually.

Common labor is always in good demand at the mills and furnaces, wages ranging from $20 to $25 per month with board. Several large bays afford some of the finest harbors on the lakes. There are several important ports along the cost, where vessels to and from Chicago land for fuel, passengers, and freight. Carp lake, an inland body of water 18 miles in length, is a great resort for sportsmen during the summer and fall seasons.

LENAWEE COUNTY.

Lenawee county was organized in 1826. It is bounded on the north by Jackson and Washtenaw, on the east by Monroe, on the south by the State of Ohio, and on the west by Hillsdale. It has an area of 720 square miles, and had a population in 1880 of 48,343. Adrian, a fine city of 7,850 inhabitants is the county seat.

The northwestern portion of the county is somewhat hilly, the central portion undulating, and the southeastern and eastern portions are level. The county is well watered by running streams, the largest of which is the River Raisin, which empties into Lake Erie at Monroe. There are available water powers along the streams, which run a number of saw and flouring mills. The soil in the northwestern part of the county is of a sandy and gravelly nature, that in the middle and southern parts is a clay loam, and that in the eastern part a black loam. The subsoil is generally clay. The varieties of timber remaining are walnut, oak, hickory, ash, elm, basswood, whitewood, and some beech, and butternut. Wheat, corn, oats, barley, rye, potatoes, and hay, are the principal crops. This county stands in the front rank when its agricultural resources are taken into consideration. Fruit culture has been tested thoroughly, and nearly all of the fruits peculiar to the latitude have been raised successfully. Pears, however, suffer somewhat from blight. The surplus fruit finds a ready sale in the orchards for the western markets.

The cost of clearing and fencing averages from $15 to $18 per acre. Wood finds a ready sale at from $3 to $5 per cord. There are no government or State lands in the market. There are some unimproved lands in the southeastern portions of the county, which can be had at from $15 to $20 per acre. They are generally held, however, for the timber, which is quite valuable. The climate does not differ from that of southern Michigan generally.

The country and village schools are in a flourishing condition, and the high school and college at Adrian are very largely attended. The State Industrial School for Girls is located one mile from the city of Adrian.

The principal industry is agriculture, although there is some manufacturing. There is a fair demand for labor in the farming districts, hands receiving from $15 to $30 per month with board. Improved farms range from $25 to $100 per acre, according to the location and improvements. The Lake Shore and Michigan Southern, its Jackson branch, its Monroe branch, the Trenton and Fayette division, and the Wabash, St. Louis and Pacific railroads traverse the county in different directions, affording excellent market facilities.

LIVINGSTON COUNTY.

Livingston county was organized in 1836. It is bounded on the north by Shia-

wassee and Genesee, on the east by Oakland, on the south by Washtenaw, and on west by Ingham. It has an area of of 576 square miles, and had a population in 1880 of 22,251. Howell, a town of 2,071 inhabitants, is the county seat. About one-half of the county might be described as gently rolling, while the other half is somewhat hilly. The county is watered by the Huron, Cedar, and Shiawassee rivers and their tributaries; also, by a number of inland lakes, some of which are skirted with marshes, most of which are subject to drainage.

The soil varies from a light sand to a heavy clay. The subsoil is generally clay. Oak is the prevailing variety of timber, though beech, maple, and cotton-wood are found in small quantities. Wheat, corn, oats, grass, potatoes, turnips, barley, and beans do well in this county. No large amount of gardening is done, wheat being the staple product, and commanding the most attention. Stock is also raised to a considerable extent. Apples are grown in large quantities for foreign markets. Peaches are sometimes successful, and the smaller fruits and berries are found everywhere.

The cost of clearing the remaining timbered lands would average from $6 to $10 per acre. Fair markets for wood are found at any of the railroad stations. There are no government or State lands in the market, and the unimproved lands are invariably held for the timber. Improved farms range in price from $25 to $90 per acre, according to location. The public highways are generally kept in a good condition.

Snow falls by the last of November, and attains an average depth of 8 inches. The ground generally freezes to a limited depth, depending entirely on the depth of the snow. Plowing usually begins by April 1st.

The schools of the county are quite numerous, and are in a flourishing condition. Agriculture is the principal industry, there being as yet but little manufacturing done in the county.

The Detroit, Lansing and Northern railroad passes through the county from southeast to northwest, and an extension of the Toledo and Ann Arbor railroad will soon cross the north eastern townships.

MACKINAC COUNTY.

Mackinac county was organized in 1818. It is bounded on the north by Chippewa, on the east by Chippewa and Lake Huron, on the south by Lakes Huron and Michigan, and on the west by Schoolcraft. It has an area of 1,116 square miles, and had a population in 1880 of 2,902. St. Ignace, a town of 2,000 inhabitants, located on the Straits of Mackinac, at the southern extremity of the county, is the county seat. It is at present the great distributing point for the eastern portion of the upper peninsula. One of the largest blast furnaces in the State is located here; also, large and extensive ore docks, from which will be shipped annually over half a million tons of ore.

Mackinac island, situated in the Straits of Mackinac, near the junction of Lakes Huron and Michigan, and now a National Park, is widely known as one of the most delightful summer resorts in the northwest. The historical associations attached to this beautiful island and its surroundings, are of great interest.

The eastern portion of the county is an elevated plateau. Up the valleys of the Pine and Carp rivers there is considerable cedar swamp, all of which is considerably elevated above the level of the lake. Along the line of the Detroit, Mackinac and Marquette railroad the land is generally level, with occasional cedar swamps, which are so high as to admit of excellent drainage. The large swamps of the Tahquamenon lie almost entirely north of this county, their southern border being nearly 250 feet above the lake level. The western portion of the county is more rolling, some of its hills raising 400 or 500 feet above Lake Michigan. There is, however, but little waste land, even the hilly portions being easily cultivated. Along the border of Lake Michigan there is a narrow strip of quite sandy land. The county is well watered by the Pine, Carp, Black, Mille Coquin, and Milakoka rivers, and by the branches of the Tahquamenon and Manistique. There are also many fine inland lakes, the most notable of which is the Manistique groups, the banks of which are high, but slope gradually to the water's edge. There are a number of undeveloped water powers in this county, the one at the outlet of North Manistique lake having a current of four miles an hour, and is sufficiently large to furnish power for any number of mills.

The soil is generally clay, limestone, gravel, and loam, with a subsoil of limestone. Here and there will be found a rich sandy loam of a chocolate color over a clay subsoil. The Manistique lake region having as its northern boundary the Detroit, Mackinac and Marquette railroad, and lake Michigan on the south, has in many places a

rich vegetable mold on the surface, underneath which is found a layer of red clay, then white marl containing a large percentage of lime, and lastly, a white clay resting on a limestone foundation. The timber is principally pine, cedar, white birch, poplar, and tamarack, the last three varieties being found in large quantities along the streams. On the dryer lands are splendid tracts of bird's-eye and curly maple, black and yellow birch, beech, basswood, etc.

The agricultural lands of this county cannot be excelled in richness of soil or in producing qualities. Wheat, barley, oats, buckwheat, hay, potatoes, turnips, etc., all grow in great abundance and of the finest quality. The vegetables are especially productive and attain an enormous size. Peas could be raised for southern markets with great profit, as they are about three weeks later than southern peas. As soon as the beaver dams are destroyed which are now scattered over the so-called swamp lands, the drainage will be perfect, and there will be left some of the best grass land in the country. Near St. Ignace tobacco is raised to a limited extent. On Mackinac Island fine plums have been raised for years. On the main land any number of blue plums, which were doubtless planted by the early French settlers, are found growing in a wild State. Strawberries, cranberries, etc., grow to great perfection. Young orchards have been set out, but it is as yet too early to warrant the success of the larger fruits.

The cost of clearing will average $20 per acre, on the heavier timbered lands, while on the "burnt lands" it will not exceed $5 or $10. Good wood markets can be found along the line of the railroad, particularly at the furnaces in St. Ignace and Newberry. The railroad company is paying $2 per cord for hard wood four feet in length. There were 26,500 acres of government, 29,488 acres of primary school, and 258,087 acres of Detroit, Mackinac and Marquette railroad land remaining unsold May 1st, 1883. The State has 10,000 acres of the indemnity school lands in one tract, located near the Manistique lakes, which is said to be among the choicest lands in the State. This land is held at $4 per acre. Many other tracts of the very best agricultural land, are held by the railroad and government at nominal prices. The roads of the county are few and new, but as the county is being rapidly settled, a system of roads is but a question of time. There is one State road from St. Ignace to Sault Ste. Marie. Snow falls by Dec. 1st to an average depth of two feet, the ground never freezing. The winters are steady, and the atmosphere is much drier than in southern Michigan. Plowing begins in April, and although the season is comparatively short, the growth of crops is much quicker than in lower latitudes, the lime in the soil giving it great vigor.

Lumbering, the cutting of ties, posts, poles, etc., charcoal burning, and agriculture, are the main industries, employing a large number of men at wages ranging from $1.50 to $1.75 per day. The Detroit, Mackinac and Marquette railroad traverses the county from southeast to northwest, and an extension from the vicinity of Newberry to the Sault will be completed during the year 1884. This road has opened up a vast amount of hitherto undeveloped territory, which is soon to become the home of the farmer, the merchant, and the manufacturer.

MACOMB COUNTY.

Macomb county was organized in 1818. It is bounded on the north by Lapeer and St. Clair, on the east by St. Clair and Lake St. Clair, on the south by Wayne, and on the west by Oakland. It has an area of 440 square miles, and had a population in 1880 of 31,627. Mt. Clemens, a town of 3,057 inhabitants, is the county seat. At this town are located the celebrated mineral springs, which attract annually a large number of people from every direction. The waters of these springs are supposed to contain a specific for rheumatism and diseases of the skin and blood. A portion of the county is quite rolling and even hilly, with considerable cobblestone. The remainder of the county is level or slightly undulating. There are a number of small streams crossing the county diagonally from northwest to southeast. Good water-powers are found on the Clinton river at Utica, on the North Branch in Ray township, and on Belle river at Memphis. Some swamp land is found in the southern part of the county, and there is some low land along the lake shore in the southeastern portion, most of which is reclaimable. The soil of the northwestern portion of the county is a gravelly loam, while that of the south and east portions is gravel and sand. The subsoil varies, clay and clay loam predominating. Oak timber is found in all parts of the county. Beech, maple, elm, basswood, and ash are found in small quantities in certain localities. Wheat is the great staple, particularly on the higher lands, while corn, oats, and potatoes do well in every part of the county. Timothy and clover are the staple grasses. Flax does well on the light

loams. Apples are everywhere grown successfully, and peaches do well on the higher lands in the western townships. Pears, plums, and cherries, and the small fruits are universally successful. But little timbered land remains, and the demand for wood is equal to the supply. Hard wood brings from $2 to $4 per cord, and soft wood averages from $1.50 to $3 according to its location. No government or State land is in the market. Unimproved lands are held at a high figure for the timber that is on them, and improved farms range in price at from $30 to $100 per acre.

Snow falls by December 1st, and during the season has an average depth of one foot. The ground generally freezes early, and when there is but little snow, freezes to a depth of two and three feet. Plowing begins from April 10th to May 1st.

The schools of the county are very good. There are three graded or union schools, and others which are partially graded. The principal industry is agriculture, although there is a little manfacturing. Labor is in fair demand, particularly on the farms in summer, and at the stave-bolt mills in winter. The common laborer receives from $15 to $20 per month and board.

The county has many herds and flocks of the best breeds, and is destined to be one of the best stock-growing counties in the State. The Grand Trunk, its Pontiac and Ridgway branch, and the Detroit, and Bay City railroads cross the county. The Clinton river is navigable for small vessels as far up as Mt. Clemens, and a daily line of steamers connects that place with Detroit during the summer season.

MANISTEE COUNTY.

Manistee county was organized in 1855. It is bounded on the north by Benzie, on the east by Wexford, on the south by Mason and Lake, and on the west by Lake Michigan. It has an area of 504 square miles, and had a population in 1880 of 12,533. Manistee, a city of 12,000 inhabitants, located on Lake Michigan, is the county seat.

The surface of the county is greatly diversified, that portion lying south of the Manistee river being comparatively level, while the portion lying north of that river is quite rolling, The two northern tiers of towns are very hilly in some parts, although easy of cultivation. The county is well watered, both by streams, and by lakes and ponds. The Manistee, a large navigable stream, crosses the county from east to west. This river has three large tributaries on the south, and one on the north, viz. : Bear creek, which in turn has a number of small tributaries, and extends diagonally across the county to the northeast. There is some water power but it is not available at present, owing to the fact that the streams are so jammed with logs. There are some sand plains in the southern part of the county, also swamps here and there which are easily reclaimed. The soil is generally a sandy or gravelly loam, mixed with more or less clay. Some tracts along the shore have a pure clay soil hundreds of feet in depth. The southern tier of towns are quite sandy, yet the soil is quite productive. Pine and oak timber predominate in the southern part of the county, while beech, maple, elm, and ash of the finest quality abound in the northern portions. Nearly every crop known in Michigan grows successfully in this county; late corn is the only exception. Wheat averages from from 15 to 18 bushels to the acre. Apples, pears, peaches, grapes, and plums do remarkably well. Berries of all sort are indigenous, and grow abundantly on every hand. On the light soil of the southern tiers of townships strawberries, raspberries, blackberries, etc., grow to great perfection.

On the heavily timbered lands in the north part of the county the cost of clearing would be considerable, but in every instance the wood and timber would pay for the clearing. There are good wood piers all along Lake Michigan, at Burnham, Pierport, Arcadia, Bear Lake, Portage, and Manistee. The Milwaukee market consumes a great deal of wood shipped from this county, hard wood bringing from $3.50 to $4.50 per cord, and soft wood $2.50. There were 14,800 acres of government, 877 acres of State swamp, 2,440 acres of primary school, 6,800 acres of Agricultural college, and 4,209 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883.

There are plenty of good unimproved lands near the markets which can be had at from $5 to $20 per acre. There are also large tracts of stump land which can be bought at from $1 to $10 per acre. The soil on these lands is light, but produces good crops of vegetables, fruits, etc. Two State roads traverse the county from south to north; one keeping near the lake shore, the other extending from Manistee to Bear Lake, and thence north across the county. The local highways are generally in a fair condition.

The climate is equable, and free from extremes of heat and cold. The mercury seldom goes below zero in winter or above 80° in summer. Considerable snow falls, and the ground seldom freezes. Plowing begins by the middle of April.

The county is well supplied with schools of a high grade. The public schools of Manistee are favorably known and well patronized by Northwestern Michigan. The principal industries are lumbering, agriculture, the manufacture of salt, shingles, ties, posts, and telegraph poles. There are about 40 lumber and shingle mills at Manistee. Labor is in good demand at remunerative prices. Skilled labor in particular is well paid. The Flint and Pere Marquette railroad has a branch from Buttars Junction in Mason county to Manistee. The Chicago and West Michigan and the Grand Rapids and Indiana railroads will eventually have branches to that city. A local road extends from Pierport to Bear Lake.

The county is settling rapidly, and offers every opportunity to settlers, whether farmers, mechanics or laborers. Lands are cheap, the soil is productive, the privileges of schools and society are unsurpassed, and a large immigration to this section may be looked for during the next few years.

MANITOU COUNTY.

Manitou county was organized in 1855. It comprises a number of islands lying in the northeastern part of Lake Michigan. Big Beaver, Garden, and Hog islands form the northern, and the north and south Manitous the southern boundaries of the county, while the north and south Fox islands lie midway between these groups. The county has an area of 180 square miles, and had a population in 1880 of 1,334. Big Beaver island is the largest of the group, and is divided into three townships, viz.: Chandler, Peaine, and Galilee. St. James, at the northern extremity of this island, a town of 180 inhabitants, is the county seat. The surface of the county is rolling, and is well watered. There are a few easily reclaimed swamps and small areas of sand plains. The soil is generally quite productive. The timber is principally beech, maple, birch, and hemlock. Wheat, oats, rye, and potatoes are the staple crops. The seasons are too short and cool for corn. Apples do well, and other fruits, when properly tested, will no doubt show encouraging results. Berries grow in a wild state, and yield bountifully. It costs about $12 per acre to clear and fence land. Hard-wood brings from $2 to $2.50 per cord, and soft-wood about half as much. There were subject to entry May 1, 1883, 15,000 acres of government, 2,002 acres of State swamp, and 1,523 acres of primary school land. Good unimproved lands can be obtained at from $2.50 to $3 per acre. There are no State roads, but plenty of good local roads over the islands.

Snow falls by October 1st, and attains an average depth of three feet, the ground seldom freezing. Plowing begins by the 20th of April in favorable seasons. The schools are few, but are in a good condition. The principal industries are agriculture, fishing, and boat making. More fish are shipped from these islands than from any other point on the lake. There is but little demand for labor. During the season for navigation, communication is had with Petoskey, Harbor Springs, and other shore towns by means of fishing boats and tugs. Large steamers also call at St. James weekly, connecting the islands with Mackinaw and Petoskey.

MARQUETTE COUNTY.

Marquette county was organized in 1851. It is bounded on the north by Houghton, Baraga, and Lake Superior, on the east by Schoolcraft and Delta, on the south by Delta, Menominee, and the State of Wisconsin, and on the west by Ontonagon and Wisconsin. It is the largest county in the State, and has an area of 3,420 square miles. It had a population in 1880 of 25,394. Marquette, a city of 6,000 inhabitants, situated in the northeastern part of the county, on Lake Superior, is the county seat. The coast-range, lying from five to twenty-five miles back from Lake Superior, with an average heighth of 800 feet above the lake, traverses the greater portion of this county. The northern portion of this range has been known as the Huron mountains, and is decidedly broken and mountainous. The southern portion includes the large iron mines, the working of which furnishes the chief business of the county. The eastern part of the county is hilly. About one-fifth of the southern and western flank of the range is low swamp land or sand plains, and is practically irreclaimable. The general character of the soil is sandy, with a sandy loam at intervals. The subsoil is mostly gravel, there being little or no clay. The timber is pine, fir, maple, hemlock, cedar, spruce, birch, tamarack, lynn, poplar, and a little cherry. Although the greater portion of the land in this county is not agricultural, yet the intervals of sandy loam furnish a good soil on which hay, wheat, oats, barley, potatoes, turnips, and carrots can be advantageously raised, much higher prices prevailing at the mining camps than in the lower counties of the State. Although apples, cherries, and

plums have been raised to a certain extent, yet fruit growing, as a rule, is not successful. The smaller fruits, however, such as strawberries, raspberries, gooseberries, cranberries, and currants, grow in great abundance, and their culture is very profitable. The season for berries is from two to three weeks later than further south. There are good local markets for hard and soft wood at the charcoal kilns, and in the camps and villages, at remunerative prices.

There were 192,000 acres of government, 40 acres of State swamp, 38,836 acres of primary school, 87,527 acres of Lake Superior ship canal, 219,802 acres of Michigen land and iron company's, 236,258 of Detroit, Mackinac and Marquette railroad, and 144,380 acres of Chicago and Northwestern railroad land, remaining unsold May 1, 1883. There are many tracts of land, some unimproved, and others cleared, which have a soil favorable to agriculture, and can be had at prices ranging from $1 to $3 per acre.

The Marquette and Munising, and the Marquette, Negaunee, and L'Anse State roads traverse the county. Owing to the rocky surface the roads are not all that could be desired.

Snow falls by November 15th, to an averaged depth of three or four feet, the ground seldom freezing. Plowing begins by the last of April or the 1st of May.

The schools of this county are well sustained. The graded schools of the larger towns are especially well equipped, and have a large non-resident attendance from the entire upper lake district.

Mining is the principal industry, although considerable attention is paid to lumbering, charcoal burning, and agriculture. There is always a good demand for common labor, wages ranging from $1.50 to $1.75 per day. Miners receive from $1.75 to $2.50 per day, according to their skill.

The Detroit, Mackinac and Marquette railroad, the Marquette, Houghton and Ontonagon, and the Chicago and Northwestern and its various branches cross the county in different directions, all centering, however, at Marquette. This place also enjoys a flourishing lake commerce, and is the great distributing point for the mining regions of Northern Michigan. Ishpeming, Negaunee, and Republic are the largest mining towns in the county.

MASON COUNTY.

Mason county was organized in 1855. It is bounded on the north by Manistee, on the east by Lake, on the south by Oceana, and on the west by Lake Michigan. It has an area of 504 square miles, and had, in 1880, a population of 10,065. Ludington, a city of 4,190 inhabitants, located on Lake Michigan, is the county seat.

The surface of the county is rolling. It is well watered, three streams running east and west through the county, viz.: the Grand Sable, the Little Sable, and the Marquette. The southern portion of the county is drained by the Pentwater river, flowing into Lake Michigan in the northeast corner of Oceana county. There is considerable swamp land, nearly all of which is reclaimable, and which will ultimately prove among the best lands in the county. The eastern tier of towns is quite sandy, but there are but few sand plains, properly so called. The soil in one-half of the county is a sandy loam, in one-quarter sand, and in the remaining quarter clay. The subsoil varies from hard clay to sand 30 feet in depth. The timber is principally beech and maple, ash, basswood, hemlock, some pine, and the other varieties usually found in northern Michigan. The main crops are wheat, oats, potatoes, and all kinds of vegetables. Some years wheat will average 20 to 25 bushels per acre. Fruit raising has been thoroughly tested, and peaches, pears, plums, and apples grow to great perfection. The Chicago and Milwaukee markets consume all of the surplus fruit.

The cost of clearing will average from $20 to $25 per acre. There are good wood markets at all of the railroad towns, hard wood bringing from $2.50 to $3.50 per cord, and soft wood from $1.25 to $1.50. There were 4,767 acres of government, 240 acres of State swamp, 895 acres of primary school, and 38,800 acres of Flint and Pere Marquette railroad land subject to entry May 1st, 1883. Good unimproved lands can be had at from $6 to $25 per acre. These lands are all accessible to market, and their nearness to Pentwater, Ludington, and Manistee, will cause a brisk demand for everything the settler may have to offer for sale. The "stump lands" are held at merely nominal prices. The soil is fair, and eventually they will develop into fine agricultural districts. There are two State roads running through the county, one running from Ludington due east, and the other from Manistee in a southerly direction. The local highways are improving each year. Snow falls early in December, having an average depth during the season of two feet, the ground seldom freezing. Spring work commences as soon as the snow leaves, usually by April 15th.

The schools of the county are in a good condition, and are multiplying rapidly. The principal industries are farming, lumbering, and the getting out of poles, ties, posts, and hemlock bark. Labor is in good demand, $20 to $30 per month being the average prices paid common labor. The Flint and Pere Marquette, its Manistee branch, and the Chicago and West Michigan railroads afford excellent outlets for the products of the county. Ludington is a shipping point of considerable prominence, and during the season for navigation is regularly visited by the largest boats on the lakes.

MECOSTA COUNTY.

Mecosta county was organized in 1859. It is bounded on the north by Osceola, on the east by Isabella, on the south by Montcalm, and on the west by Newaygo. It has an area of 576 square miles, and had a population in 1880 of 13,973. Big Rapids, a city of 5,000 inhabitants, is the county seat. The surface of the country is generally rolling. There is very little swamp land, all of which is reclaimable. The county is watered by the Muskegon, Chippewa, and Little Muskegon rivers, and their tributaries. Nearly every farm has its spring or spring brook. There are, also, from 30 to 50 inland lakes of clear cold water, surrounded as a rule by high banks. All of the rivers and small creeks have many undeveloped water-power sites.

The soil is a sandy loam with clay. About one-fifth of the county may be described as sandy. The prevailing varieties of timber are beech, sugar maple, elm, ash, basswood, cherry, pine, and hemlock. The main productions are wheat, rye, oats, corn, barley, and potatoes. Hay is a sure and profitable crop, timothy and the finer grasses, particularly red clover, which grows luxuriantly, being the favorite varieties. Fruit growing, wherever tested, is a success. Apples and the small fruits yield abundantly. Plums and cherries are especially worthy of mention, growing in large quantities and of the finest quality.

The cost of clearing will average $10 per acre, with good wood markets in every direction. Hard wood of stove length brings from $1 to $1.75 per cord; soft wood from 75 cents to $1.25. There is no government land in the market. There was subject to entry May 1st, 1883, 40 acres of State swamp, 400 acres of primary school, 7,937 acres of Grand Rapids and Indiana,, and 6,600 acres of Flint and Pere Marquette railroad land. Good unimproved lands near the railroad can be had at from $8 to $12.50 per acre. These are mostly beech and maple lands, with a soil of clay loam. Some of the "stump lands" have a heavy clay soil, and make fine productive farms. They vary in price according to location. Thus excellent opportunities exist for men with small capital who can buy these lands from which the pine has been cut at prices ranging from $1 to $5 per acre. The Big Rapids and White Lake, the Big Rapids and Greenville, the Alma and Clinton, and the Big Rapids and Big Prairie State roads traverse the county. Snow falls by Dec. 1st, and attains an average depth of one foot. The ground seldom freezes over six or eight inches in depth, very frequently not at all. Plowing commences by April 1st.

The village and county schools are generally excellent. Big Rapids has a central building that cost $15,000. This and the ward schools are manned by an able corps of teachers.

The principal industries are agriculture, lumbering, and the cutting of ties, posts, etc. Labor is in good demand, wages ranging from $20 to $30 per month, with board. The Grand Rapids and Indiana, the Lake Shore, and the Detroit, Lansing and Northern railroads traverse the county. The lumbering operations in this section of the State creates a demand for every farm product, particularly hay, grain, potatoes, and winter vegetables, and every facility is offered for quick transportation.

MENOMINEE COUNTY.

Menominee county was organized in 1863. It is bounded on the north by Marquette, on the east by Delta, on the south by Green Bay and Wisconsin, and on the west by Wisconsin. It has an area of 1,368 square miles, and had, in 1880, a population of 11,987. Menominee, a city of 4,000 inhabitants, situated at the lower extremity of the county, is the county seat.

The surface of the county is rolling. There is considerable swamp land, which is drained by small streams and is reclaimable. The Sturgeon, Menominee, Cedar, and other streams water the county, and good water powers are found in several localities. The soil is somewhat sandy, with a clay subsoil. Pine, hemlock, spruce, cedar, basswood, maple, and beech, poplar, and elm timber are found throughout the entire county. Hay, oats, wheat, barley, rye, corn, peas, beans, potatoes, turnips, carrots,

parsnips and roots of all kinds are generally successful. Apples, plums, grapes, and the different varieties of berries grow abundantly. The home markets consume the entire production of the county.

The cost of clearing will average $20 per acre, with good local markets for wood, hard wood bringing from $2.50 to $3.50 per cord, and soft wood $2. About 45,000 acres of government, 921 acres of State swamp, 11,616 acres of primary school, 46,967 acres of Lake Superior canal, and 94,105 acres of Chicago and Northwestern railroad land were subject to entry May 1st, 1883. Good unimproved agricultural lands can be had at an average price of $10 per acre. There is considerable stump land which is well adapted to farming purposes, which can be had at a low figure. There is a State road from Menominee to Escanaba and to Quinnesec. The local highways thoroughly open up the county, and are generally in a good condition. Snow falls by Nov. 20th to a depth of 12 or 14 inches. The ground usually freezes to a considerable depth, yet plowing begins by May 1st.

The schools of the county are in an excellent condition, and no pains or expense is spared to improve them wherever opportunity offers. The principal industries are agriculture, lumbering, iron mining, and the manufacture of paper, charcoal, etc. Posts, ties, and telegraph poles are annually gotten out in large quantities. Labor is in fair demand at prices ranging from $25 to $40 per month. The Chicago and Northwestern railroad and its branches traverse the county.

MIDLAND COUNTY.

Midland county was organized in 1855. It is bounded on the north by Gladwin, on the east by Bay, on the south by Gratiot, and Saginaw, and on the west by Isabella. It has an area of 504 square miles, and had in 1880 a population of 6,893. Midland, a city of 2,000 inhabitants, is the county seat. The surface of the county is slightly rolling, excepting the extreme southern portion, where it is quite level. It is well watered by the Tittabawassee, Chippewa, Pine, Salt, and Tobacco rivers, and the small streams tributary to them. There is plenty of available water power throughout the county. There are no swamps of any size, and no sand plains. The soil of the southern portion of the county is mostly clay; that of the northern part is a clay loam, while the western and eastern portions have a sandy loam. A clay subsoil underlies the entire county. The timber is mostly beech, maple, ash, oak, birch, elm, pine, and hemlock. The principal crops are wheat, oats, corn, barley, roots of all kinds, and especially hay. Every fruit that has been tried has grown successfully. Apples, plums, and other small fruits have invariably done well. There can be no doubt but that fruit will be one of the staples of Midland county. The cost of clearing will average from $10 to $12 per acre. There is a good demand for wood at the salt blocks and bromine works, in Midland City. Hard-wood, 18 inches in length, brings $1.50 per cord; soft-wood averages $1.25.

There is no government land in the market. There were 168 acres of State swamp, 2,846 acres of primary school, and 8,500 acres of Flint and Pere Marquette railroad land subject to entry May 1, 1883.

Good unimproved lands are plentiful. They can be obtained within a few miles of the settlements at from $5 to $12 per acre. The "stump lands" of this county have a good soil, and wherever cultivated have produced good crops. They are held at from $4 to $8 per acre. Improved farms range in price from $20 to $60 per acre, according to their location. There are two State roads leading from Midland City, one running in a southerly direction to St. Louis, in Gratiot county, and the other running west and north to Houghton Lake, in Roscommon county.

Snow falls by December 1st, to an average depth of one foot. Spring work commences in May. The winters are generally steadier in this latitude than in the southern part of the State. The schools of the county are numerous and excellent. At Midland City there is a $20,000 school building, and every effort is made to have the standard compare favorably with that of any city in the State

Agriculture, lumbering, the manufacture of salt and bromine, charcoal burning, and the cutting of ties, posts, and telegraph poles, are the principal industries of the county. There is a good demand for common and skilled labor. The Flint and Pere Marquette railroad crosses the county from southeast to northwest. There are several logging roads in the northern part of the county, and a road will doubtless be constructed between Midland and Bay City, in the course of a few years.

MISSAUKEE COUNTY.

Missaukee county was organized in 1871. It is bounded on the north by Kalkaska,

on the east by Roscommon, on the south by Osceola and Clare, and on the west by Wexford. It has an area of 576 square miles, and had a population in 1880 of 1,533. Lake City, a town of 300 inhabitants, is the county seat.

The surface of the county is gently rolling, and is well watered by the Clam and Muskegon rivers, and by small lakes and spring brooks of clear cold water. There is good water power to be found, particularly on the Clam river. The soil varies from a sand and sandy loam to a clay loam, with a clay subsoil. The timber on the hard-wood lands is principally sugar maple, beech, elm, basswood, and hemlock. There are also belts of valuable pine scattered through various portions of the county. The successful crops are wheat, oats, hay, barley, potatoes, corn, and in fact all root crops. The early kinds of corn do well. Apples and plums are grown successfully. All varieties of berries also grow in great abundance. Peaches, however, are not to be relied on.

The cost of clearing hard-wood land will average $12 to $15 per acre. There are no wood markets of any consequence, yet the logs are in good demand at the local mills, and at the roll ways along the streams. There were 2,800 acres of government, 7,350 acres of State swamp, 2,039 acres of primary school, 36,879 acres of Grand Rapids and Indiana railroad, and 916 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1st, 1883. There are large tracts of unimproved land, which can be bought at prices ranging from $1 to $7 per acre. These invariably have a good soil and will develop into good agricultural districts. The stump lands, some of which are very desirable, are also quite numerous, and can be had at from $1 to $5 per acre. There are five State roads running through the county, viz.: one north and south through the center of the county, one east and west from Lake City to Cadillac, one from Falmouth to Cadillac, another east and west through the north part of the county, and still another north and south along the Muskegon river. The townships of this county are well opened by section-line roads. Snow falls by the last of November, the average depth of the season reaching 20 inches. The ground does not usually freeze, save in places where the wind blows away the snow. Potatoes are frequently left in the ground all winter. Plowing begins by the last of April.

The schools are few but are generally in a fair condition. Lumbering is the principal industry. It will not be long before there will be a good demand for poles, ties, posts, etc., from this county, and common labor in particular will be in great demand. Even now there are fine markets for everything that can be raised, and all of the available labor is employed. Wages range from $20 to $35 per month. A railroad is projected through the county, which will, when constructed, thoroughly open it up, and its many resources will at once become available. The Grand Rapids and Indiana railroad passes through the eastern tier of townships of Wexford, the adjoining county on the west.

MONROE COUNTY.

Monroe county was organized in 1817. It is bounded on the north by Washtenaw and Wayne, on the east by Lake Erie and Detroit River, on the South by Ohio, and on the west by Lenawee. It has an area of 504 square miles, and had a population in 1880 of 33,624. Monroe, a city of 4,930 inhabitants, is the county seat.

The eastern portion of the county, adjoining the lake, is quite level. The western portion is more rolling, but none of this territory can be called hilly. There are some sand plains in the central and western portions of the county, interspersed with wet prairie and cranberry marshes. The latter are all reclaimable and very productive when drained. The county is well watered by the river Raisin and its branches, the Huron, Saline, and Macon rivers, and the Swan, Stony, Otter, Muddy, Mulhollen, and other creeks. There is an abundance of water power on the Raisin, Saline, and Macon rivers. The soil in the eastern part of the county is a rich clay loam, with a clay subsoil. In the western portion of the county the soil varies from a sandy and gravelly loam on the higher lands, to a black and clay loam on the low lands, the subsoil being usually of gravel. The timber is mostly white, red, yellow, and black oak, elm, basswood, hickory, chestnut, hard and soft maple, beech, white and black ash, and some poplar and cottonwood.

Wheat, corn, oats, and barley are largely grown, but the most valuable product is the hay crop, the eastern portion of the county being excellent grass land. Stock raising is becoming an important enterprise. On some of the lighter lands potatoes and other vegetables are cultivated to advantage for the Toledo market.

Sweet corn has been a valuable special crop for several years, thousands of bushels being dried annually for the eastern market.

Fruits are largely grown in this county. Apple orchards and vineyards are numerous and extensive. Peaches and plums are grown with success, but not so largely. The export of grapes, apples, strawberries, raspberries, and blackberries is very large, mainly to the Detroit and Toledo markets. The land in the vicinity of Monroe is especially adapted to grape culture.

The timbered lands of the county are very valuable. Ship and sawing timber, stave bolts, heading, etc., are cut from them, and the remaining timber is worked up into fuel, of which there is often a scarcity. Hard-wood, at Monroe, brings from $4 to $5 per cord, and soft-wood from $2 to $3. There are no government lands in this county. There were only 292 acres of State swamp, and 219 acres of primary school land subject to entry May 1, 1883. Unimproved timbered lands are held at from $40 to $100 per acre. Many good parcels of land can be found, from which timber has been cut, and which can be bought at prices ranging from $15 to $40 per acre. These lands are generally well adapted to farming purposes, particularly to grazing. Improved farms are held at a high figure, ranging from $40 to $100 per acre.

The highways of the county are uniformly good. On the strong clay lands in the eastern portion they are naturally bad during the wet seasons. Snow generally falls by December 1st, to an average depth of ten inches, but many winters are quite open, with but little snow, the ground freezing fully 18 inches in depth. Spring work begins by April 1st. The schools of the county are excellent. The high school, the Catholic seminary, and the academy at Monroe, all sustain a very high reputation.

The principal industries are agriculture, stock growing, hard-wood lumbering and charcoal burning. There are also numerous lime-stone quarries along the River Raisin and at other points, which furnish large quantities of building stone and lime.

Labor is generally supplied by the resident population, although there is sometimes a scarcity during the summer season. The Flint and Pere Marquette, Canada Southern, Lake Shore and Michigan Southern, Toledo and Ann Arbor, and the Wabash, St. Louis and Pacific railroads traverse the county. A projected road, the Ohio and Michigan, running from Toledo to Western Michigan, will also cross the county. Monroe is regularly visited during the season for navigation by boats from Toledo, Cleveland and other lake ports, the river being navigable for vessels of considerable draught.

MONTCALM COUNTY.

Montcalm county was organized in 1850. It is bounded on the north by Isabella and Mecosta, on the east by Gratiot, on the south by Ionia, and on the west by Kent and Newaygo. It has an area of 720 square miles, and had a population in 1880 of 33,148. Stanton, a town of 2,000 inhabitants is the county seat.

The surface of the country is generally rolling. It is watered by Flat river in the western part of the county, and by Pine river in the northeastern portion, also by a number of creeks and small lakes scattered throughout the entire county. There are water powers on every stream in the county. There are a number of swamps which are all reclaimable. The soil of the northern and western townships is of a sandy nature, while that of the eastern and southern townships is a fine loam, very productive. The subsoil is clay throughout. The principal varieties of timber are pine, oak, beech, maple, and ash. Wheat, oats, corn, potatoes, and grass all do well. Wheat has averaged 20 bushels to the acre for several years. All sorts of vegetables are remarkably successful. Fruit of all kinds is grown with favorable results; peaches, however, are not a sure crop. Apples are shipped in large quantities to the western market.

The cost of clearing will average $15 per acre, with excellent wood markets in every direction. hard wood, stove length, bringing from $1.25 to $1.50 per cord, and soft wood about 75 cents. No government lands remain unsold, and but little State land. The Grand Rapids and Indiana railroad have still 1,120 acres in the market. Desirable unimproved lands can be had at an average price of $10 per acre, while the "stump lands" range from $1 to $5. These lands often prove to be good wheat lands. There is a State road from Greenville to Big Rapids, one running north from Ionia to Houghton Lake, and two running east and west through the county. Snow falls by Dec. 1st, its average depth during the season being 15 inches, the ground not freezing to any great depth. Plowing usually begins by April 20th.

The schools are both numerous and excellent. Agriculture, lumbering, and the manufacture of coal, posts, ties, and telegraph poles, are the principal industries. Labor is always in good demand at prices ranging from $20 to $25 per month with board. The Detroit, Lansing and Northern, its Big Rapids branch, and the Saginaw Valley and St. Louis railroads cross the county, affording excellent market facilities to every township. No better inducements can be offered to the settler with small

means than that afforded by this county. Land is cheap, the soil good, society and schools first-class, and the development and permanent prosperity of the county assured.

MONTMORENCY COUNTY.

Montmorency county was organized in 1881. It is bounded on the north by Cheboygan and Presque Isle, on the east by Alpena, on the south by Oscoda, and on the west by Otsego. It has an area of 576 square miles, and has a population of about 500. Hillman, a town of 50 inhabitants, is the county seat. The eastern part of the county is very level, the central portion is rolling, and the western portion is rolling and somewhat inclined to be hilly. It is watered by the Thunder Bay river, which runs through the center of the county from west to east, and is intersected by small streams from the north and south. There are a number of valuable water powers. About one-fourth of the county is swamp land, all of which is reclaimable; another quarter of the county consists principally of sand plains with a good clay subsoil in some places. The soil in the eastern part of the county is mainly a red clay; that of the central portion varies from a light sand to a heavy red clay, while that of the western portion is a clay and sandy loam. The two upper ranges of towns have a fair soil, of which at least two-thirds is suitable for agriculture; this is also true of the southwestern townships. The region is timbered with beech and maple, with hemlock interspersed, and some scattering pine. One or two townships contain large tracts of "burnt land," which have been nearly cleared by fire, and which have an excellent clay soil. There are many improved farms in town 31, range 4, on which reapers are now in use. It is the most thickly settled township in the county, and formerly had the county seat. Town 30, range 1, contains a large tract of Agricultural college lands, which are selling rapidly at $5 per acre, and there is considerable settlement in progress upon them. The southern portion of the county is chiefly composed of yellow sand plains. Spruce and Norway pine prevail on these plains, also white pine along the headwaters of the Thunder Bay river. With proper attention any crop peculiar to the latitude can be successfully grown in most portions of this county. Vegetables, roots, hay, wheat, and corn do well except in unusually cold seasons. Fruit growing has been tested, to a limited extent, with fair results. The cost of clearing the timbered lands average $20 per acre. There is no demand, however, for wood at the present time.

There were 45,000 acres of government, 6,701 acres of State swamp, 6,160 acres of primary school, 8,105 acres of Agricultural college, and 305 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1, 1883.

The unimproved State swamp lands are easily drained, and make valuable farms. The county also contains large tracts of "stump lands," with fair soil, which can be bought at prices ranging from $1.50 to $3 per acre. The Agricultural college and school lands are well adapted to farming purposes. A State road runs east and west through the county, connecting Hillman with the village of Atlanta. The local highways are as yet very new, and are in great need of improvement.

Snow falls by the middle of November to an average depth of 10 inches, the ground not freezing to any depth. Plowing begins by May 1st, or as soon as the snow melts.

The public schools are few, but every effort is made to have the standard as high as that of the adjoining counties, where schools are more plentiful.

There are about sixty million feet of pine cut annually in this county. Large quantities of posts, ties, and poles are gotten out, which employs all of the labor that is available, at wages ranging from $26 to $30 per month with board. The taxes average about $5 per 40 acres, and are chiefly local.

MUSKEGON COUNTY.

Muskegon county was organized in 1859. It is bounded on the north by Oceana and Newaygo, on the east by Newaygo, Kent, and Ottawa, on the south by Ottawa, and on the west by Lake Michigan. It has an area of 540 square miles and had a population in 1880 of 26,586. Muskegon, a thriving city of 11,262 inhabitants, is the county seat.

The surface of the county is quite rolling, though not hilly. It is well watered by the Muskegon and White rivers, and by Crockery creek. Numerous streams of less size flow into the above named rivers. There are but few marshes and swamps, nearly all of which can be reclaimed. The soil in the eastern part of the county is a rich heavy loam. In the middle and western portions it is lighter, and for the most part rather sandy. The timber in the eastern townships is largely beech and

maple. Pine, oak, and hemlock prevail in the middle and western portions. Wheat, corn, potatoes, and vegetables are the principal crops of the county. Fruit culture is extensively engaged in. Grapes and berries, particularly strawberries, are raised in large quantities for the western markets. The value of the crops in six townships for the year 1882 exceeded thirty thousand dollars.

The cost of clearing will average about the same as in the surrounding counties. Hard wood brings from $4 to $5 per cord, and soft wood from $2 to $2.50. There were 1,100 acres of government, and 2,837 acres of State swamp land subject to entry May 1st, 1883. The unimproved lands, particularly the swamp lands, are well adapted to fruit growing and farming, and are held at from $3 to $15 per acre, while improved farms bring from $30 to $80. The highways of the county are generally in a fair condition. The climate is a very equable one. The seasons, however, are later in spring and fall, owing to the influence of Lake Michigan.

The schools are very good, the public schools of Muskegon being particularly worthy of mention as having a large non-resident as well as local patronage. Lumbering is the principal industry, there being no less than 60 large saw-mills in the county, besides numerous other manufacturing enterprises. The amount of lumber sawed annually aggregates 800,000,000 feet. Labor is in great demand, wages ranging from $1 to $2.50 per day. Muskegon is located at the eastern extremity of Muskegon lake, which extends inland six miles from Lake Michigan. The shores of of this lake are lined with mills. Large fleets run between this port and Chicago every season. There is also a daily line of steamers between Muskegon, Chicago, and other lake ports. The suburban population of Muskegon is about 3,000. The Chicago and West Michigan railroad and several of its branches afford excellent outlets in every direction.

NEWAYGO COUNTY.

Newaygo county was organized in 1851. It is bounded on the north by Lake, on the east by Mecosta and Montcalm, on the south by Muskegon and Kent, and on the west by Muskegon and Oceana. It has an area of 864 square miles, and had a population in 1880 of 14,688. Newaygo, a town of 1,100 inhabitants, is the county seat.

Although there is some level country, the general surface of the county is rolling. It is well watered by the Muskegon, White, the headwaters of the Marquette, the headwaters of its south branch, and by numerous smaller streams, spring brooks, and inland lakes. There is but little swamp land in the county. There is some sandy prairie, but a greater portion of the county is very productive. The soil varies from a clay to a sandy loam. There is some light soil, but even this responds to proper cultivation. The timber is beech, maple, basswood, elm, and some pine. The principal crops are wheat, grass, oats, rye, potatoes, and garden vegetables. The county fair exhibits show that as fine fruit is raised in this county as in any locality in the State.

The cost of clearing averages from $15 to $20 per acre, according to the amount of timber. There are good markets for wood along the railroads, eighteen-inch hard wood bringing from $1.50 to $2 per cord. There were about 800 acres of government, 2,727 acres of primary school, 8,500 acres of Flint and Pere Marquette railroad, and 6,054 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883. Plenty of good unimproved lands can be had at prices ranging from $3 to $15 per acre, according to location. Thousands of acres of "stump land" can be had at from $1 to $5 per acre. The soil on some of these lands is quite good, and is said to make the best kind of wheat land. The Grand Rapids, Newaygo and Northport, and the Newaygo and Dayton State roads traverse the county. The local highways are are kept in as good condition as the seasons will permit. Snow falls by Dec. 1st, and generally attains a depth of 20 inches. The depth to which the ground freezes depends upon the snow fall. Spring plowing usually commences in April.

The schools of this county are generally well conducted. The school buildings proper are very comfortable, and reflect great credit upon the school management throughout the county. Agriculture and lumbering are the principal industries. Shingles, staves, bolts, ties, posts, and telegraph poles, are shipped in large quantities. Common labor is generally quite scarce, wages ranging from $16 to $30 per month in the country, and from $1 to $2 per day in the villages. Two divisions of the Chicago and West Michigan railroad cross the county in different directions. Although manufacturing has not heretofore been engaged in to any extent, yet the magnificent water powers afforded by the Muskegon river at Newaygo, not to speak of those found on Brooks and Penoyer creeks, will soon attract manufacturing enterprises of various kinds. Already large flouring mills, tub and pail factories, lath and

shingle mills, and brick yards are established at Newaygo, and companies are about to be organized for the erection of paper mills and furniture manufactories. To the settler with or without means, Newaygo county offers the advantages of cheap lands, a fertil soil, good markets, fine schools, and an enterprising and intelligent community.

OAKLAND COUNTY.

Oakland county was organized in 1820. It is bounded on the north by Genesee and Lapeer, on the east by Macomb, on the south by Washtenaw and Wayne, and on the west by Livingston and Genesee. It has an area of 900 square miles, and had a population in 1880 of 41,537. Pontiac, a town of 4,509 inhabitants, is the county seat. Near this town is located the Eastern Asylum for the Insane, a magnificent structure, which accommodates a large number of patients. At Orchard Lake, near Pontiac, is also a fine Military school, which enjoys a large patronage. The surface of the county is generally rolling, though not hilly. The highest land of that section of country lying between Lake Michigan, Lake St. Clair, Saginaw Bay, and Detroit river is found in this county, it being from 400 to 600 feet above the Detroit river. Four important rivers rise near the center of the county flowing in entirely different directions, viz.: the Shiawassee, the Huron, the Clinton, and the Rouge. The county is well watered also by numerous smaller streams and inland lakes, there being no less than 100 of these small lakes within the border of the county. There is some swampy land along the border of the lakes, nearly all of which is reclaimable. A number of available waters are found along the larger streams, many of which are in use.

The soil is a mixture of sand, clay, and loam; this combination prevailing in every township in the county. The subsoil is uniformly clay. The eastern portion of the county was originally timbered with beech, maple, basswood, oak, ash, elm, etc., while the northern portion was timbered chiefly with oak. But little timber now remains, and this is carefully husbanded for domestic use.

Wheat is the staple, though large crops of corn, oats, barley, rye, buckwheat, potatoes, and all garden vegetables are annually harvested. Apples, pears, peaches, and grapes are profitably cultivate. The Canada red, Baldwin, and Greening apples, the Bartlett pear, the Crawford peaches (early and late varieties), and the Concord grapes, have a large sale in Detroit, Toledo, and Chicago markets. As stated above, timbered lands are scarce, hence, hard-wood brings from $3 to $4 per cord, and soft wood about a dollar less. There are no government, State, or railroad lands for sale in this county. Improved farms are the only available lands, at prices ranging from $50 to $100 per acre. The highways of the county are unexceptionally good. The two great wagon roads, viz.: the Saginaw turnpike, and the Grand River turnpike, (both leading to Detroit), are extensively traveled.

About seven months constitute an ordinary season for productive farm labor. Little snow falls prior to January 1st. It generally averages from 6 to 12 inches in depth. The ground usually freezes to a moderate depth, depending entirely on the fall of snow. A gravelly open soil in an exposed situation will sometimes freeze to a depth of three feet. Spring work begins usually by April 1st.

The schools are very numerous, and sustain a fine reputation. Agriculture is the principal industry, and creates a constant demand for farm labor during the summer season, wages usually ranging from $15 to $24 per month with board. A large peat bed was discovered a few years since, not far from Highland, on the line of the Flint and Pere Marquette railroad, which yields a considerable amount of this peculiar fuel. The Detroit, Grand Haven and Milwaukee, the Detroit and Bay City, the Flint and Pere Marquette, and a branch of the Grand Trunk railroad, place every section of land throughout the county within easy reach of market facilities.

OCEANA COUNTY.

Oceana county was organized in 1855. It is bounded on the north by Mason, on the east by Newaygo, on the south by Muskegon, and on the west by Lake Michigan. It has an area of 540 square miles, and had a population in 1880 of 11,699. Hart, a village of 600 inhabitants, is the county seat.

The western portion of the county is comparatively level, while the central and eastern portions are more rolling. The White, Pentwater, its north and south branches, and numerous smaller streams and inland lakes water the county. There are good water powers on several of these streams. The soil is a sandy loam with clay subsoil. Plenty of mould is found save in the lake shore townships which are of the

sandy fruit belt. The timber is principally beech, sugar maple, basswood, and elm. Every crop that is peculiar to Michigan is grown successfully in this county. Wheat, corn, oats, and potatoes, receive the most attention. The potatoes of this county are eagerly sought after by southern buyers, and are said to yield as high as 300 bushels to the acre. Apples, pears, plums, cherries, etc., grow to great perfection throughout the entire county, and peaches are a sure crop in the lake-shore towns. There is a great demand for the fruit of this county in the Chicago and Milwaukee markets.

Clearing costs from $12 to $20 per acre. Good wood markets abound, hard-wood, 20 inches in length, bringing $1.25 per cord, while soft-wood averages 75 cents. There were about 1,000 acres of government, 40 acres of State swamp, and 4,700 acres of Flint and Pere Marquette railroad land subject to entry May 1, 1883.

Good improved lands can be had at prices ranging from $5 to $10 per acre. They are among the best agricultural lands in the county. The "stump lands" in the towns of Golden, Weare, Pentwater, and Crystal, are well adapted to fruit growing, and are held at from $2.50 to $10 per acre. The Pentwater and Newaygo State road runs east and west, connecting these towns. The Allegan and Traverse Bay road runs north and south. The remaining highways are in a very creditable condition for a new county.

Snow falls by December 1st to a considerable depth, the ground rarely freezing. Spring work begins by May 1st.

The schools are good, and are well attended. The principal industries are agriculture, fruit raising, lumbering, the cutting of ties, posts, etc., and charcoal burning. There is a furniture factory at Pentwater, and manufactories for working up hard-wood at Shelby, Mears, and Hart. The Chicago and West Michigan railroad are surveying a line from Hart through Crystal Valley, which will open up one of the finest pine and hard-wood sections in the State.

Labor is in good demand, wages ranging from $1.50 per day upwards. The Chicago and West Michigan railroad, and its Traverse City branch, are the only railroads traversing the county at present. Pentwater is a well-known lake port, and enjoys a large shipping trade annually.

OGEMAW COUNTY.

Ogemaw county was organized in 1875. It is bounded on the north by Oscoda, on the east by Iosco, on the south by Gladwin and Arenac, and on the west by Roscommon. It has an area of 576 square miles, and in 1880 had a population of 1,914. (The population will doubtless now reach 3,000.) West Branch, a town of about 300 inhabitants, is the county seat.

The surface of the county is undulating, and is well watered by the Rifle river and its many branches; also by numerous springs and spring brooks. There are occasional swamps with cedar, tamarack, black ash, white maple, and other similar timber. These swamps are generally reclaimable, and it is believed will make good meadow lands. The southwestern part of the county contains a large tract of hard wood (beech and maple with hemlock and pine interspersed) growing in a good clay soil. North of this lies a ridge of white and Norway pine. The rest of the county to its eastern border is occupied by a series of ridges and valleys having a north and south tendency, and located in the following order, commencing in the west: 1st, the plains of yellow sand; 2d, ridges and valleys with much Norway and white pine, and considerable gravelly soil of fine quality; 3d, a hard-wood ridge with a good clay soil; 4th, in the extreme eastern part of the county commence what are known as the Tawas plains, which extend far into Iosco. These plains have a soil of yellow sand. The prevailing timber is Jack or spruce pine, which makes a good fuel, and can be used for fencing. They have been burned over often, the fires burning down into the land itself, the soil apparently rendered combustible by the drippings of pitch from the pines. They are without a regular subsoil, but still retain moisture. Lakes are scattered through the plains, and surface springs are also found. There are many homesteaders farming on these plains, who raise good crops of clover and rye, excellent vegetables, also corn and wheat in favorable seasons. Fertilizers are used to a considerable extent, and what this soil will do under continued cultivation is yet to be tested. There is considerable maple timber in the county, the soft maple growing in the sand, while in the clay lands the hard sugar maple flourishes and predominates over the beech. On the clay lands vegetables and rye are good crops, as are hay and clover. Corn and wheat also do well in favorable seasons. The capacity of the county for fruits has not yet been thoroughly tested, and the later frosts are now considered a serious obstacle to successful fruit raising. Berries, however, grow in abundance.

The cost of clearing averages $20 per acre on the heavy timbered lands and from $1 to $5 on the plains. There are, as yet, no wood markets of any consequence. There were 1,500 acres of government, 3,330 acres of State swamp, 4,082 acres of primary school, and 9,090 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1st, 1883. There are plenty of unimproved lands within a few miles of the county seat which can be had at prices ranging from $2.50 to $10 per acre. These lands have a soil of clay loam, and make the best of farms. When located in remote parts of the county the price varies from $3 to $6 per acre. There are large tracts of stump land which are rapidly coming into the market. The Manistee and Tawas State road runs east and west through the county. There is also a State road running north and south which passes about a mile east of the county seat. Snow falls early in November to an average depth of 20 inches. Spring work begins early in April.

There are about thirty schools in the county, all of which have more than six months' school each year. Lumbering is as yet the principal industry. Ties, posts, and telegraph poles are gotten out in large quantities. Labor is in good demand, wages ranging from $1 to $1.50 per day. In the lumber woods wages range from $20 to $30 per month with board. The Mackinac division of the Michigan Central and the Tawas and Bay county railroads are the only ones traversing the county at present, The Michigan Central railroad company has surveyed a line 25 miles in length, extending in a northeasterly direction from Beaver Lake. This line will, eventually, reach Alpena. There is also a projected extension of the Toledo, Ann Arbor and Northern from North Bradley on the Flint and Pere Marquette railroad to Alpena, which will cross the county.

ONTONAGON COUNTY.

Ontonagon county was organized in 1853. It is bounded on the north by Lake Superior, on the east by Houghton and Marquette, on the south by Wisconsin, and on the west by Wisconsin and Lake Superior. It is the second county in the State in size, and has an area of 2,448 square miles. It had a population in 1880 of 2,565. Ontonagon, a town of 1,000 inhabitants, situated in the northern part of the county, on Lake Superior, is the county seat.

The surface of the county is decidedly rolling, and in many parts it is even hilly and mountainous. There are some low lands, all of which are reclaimable. The county is well watered by the Montreal, Black, Carp, Presque Isle, Misery, Sleeping, and Ontonagon rivers, and its numerous branches, which afford splendid water powers in many places. There are also innumerable inland lakes. Agogebic lake, near the center of the county, is surrounded by some of the richest mineral region in the upper peninsula. In the agricultural districts the soil varies from a light to a heavy loam with a clay subsoil. The timber is principally pine, sugar maple, beech, birch, hemlock, ash, and spruce. Winter wheat, oats, rye, potatoes, and vegetables are said to do remarkably well. Corn, as a rule, does not mature, though some of the earlier varieties do fairly well in favorable seasons. The hardier varieties of apples grow to great perfection, and blue plums, gooseberries, currants, and strawberries are grown in considerable quantities.

The cost of clearing averages $15 per acre, with good wood markets at the mines and lake towns at prices ranging from $2.50 to $3.50 per cord for hard wood. There were 157,000 acres of government, 4,234 acres of State swamp, 32,520 acres of primary school, 204,179 acres of Lake Superior ship canal, and 20,000 acres of St. Mary's canal company's land still in the market May 1st, 1883. There are large tracts of timbered land, from which timber enough for fuel has been cut, which can be had at from $2 to $6 per acre. The lands owned by corporations are held at from $5 to $8 per acre. Among these lands can be found tracts well adapted to farming, having a good soil, and located within reach of settlements. The "stump lands" of the county have not as yet come into the market, owing to their distance from civilization. A State road runs east and west through the county, and a military road north and south. The local highways are generally in good condition. Snow falls in October and attains an average depth of four feet, the ground freezing only where the snow has blown off. Plowing usually begins from the 20th of April to the 1st of May.

No expense is spared to make the public schools comfortable and successful. Wages to teachers range from $400 to $1,200 per year. Mining, lumbering, charcoal burning, and the cutting of ties, etc., are the principal industries, employing a large number of laborers, wages ranging from $25 to $50 per month. Ontonagon is the seat of an extensive lake commerce, large shipments of ore, timber, etc., being made annually. The Ontonagon and Brulé River railway extends in a southerly direction

from Ontonagon, and is promised to reach the Wisconsin line within a year. There are also projected roads from L'Anse to Ontonagon, and from Marquette through to the Montreal river, its western boundary, where junction will be made with the Northern Pacific. Until recently the greater part of this county has been a vast undeveloped wilderness; but its great mineral wealth, timber, and agricultural resources are attracting capital and labor with a rapidity which can but produce a marked change in its appearance and condition within a very few years.

OSCEOLA COUNTY.

Osceola county was organized in 1869. It is bounded on the north by Wexford and Missaukee, on the east by Clare. on the south by Mecosta, and on the west by Lake. It has an area of 576 square miles, and had a population in 1880 of 10,777. Hersey, a town of 500 inhabitants, is the county seat.

The surface of the county is greatly diversified, the larger portion of the county, however, being comparatively level. The northwestern portion is quite hilly. An extensive belt of pine barrens is found on the line of the Flint and Pere Marquette railroad, east and west of Evart, with a generally level surface. Back of this the land is more desirable, beech and maple lands predominating, with occasional white cedar swamps which make fine grass lands when reclaimed. The county is well watered by the Muskegon river and its tributaries; also by a large number of spring brooks. A sandy loam predominates but all kinds of soil, varying from a light sand to a heavy clay, are found in nearly every township. The subsoil is generally clay. The principal varieties of timber are maple, rock-elm, black and white ash, beech, and basswood. There are, however, belts of pine, hemlock, and some birch in most townships. All northern crops grow to perfection. That the soil of Osceola county is well adapted to growing wheat is made evident by the fact that wheat has been known to yield 40 bushels to the acre, although the average yield is much less. Corn, buckwheat, potatoes, peas, etc., do well. Apples are a successful crop. Plums, pears, cherries, and berries, particularly whortleberries, yield abundantly. Peaches, however, are not to be depended on.

The cost of clearing will average $15 per acre. There are 160 acres of government, 141 acres of State swamp, 1,382 acres of primary school, 6,000 acres of Flint and Pere Marquette railroad, and 49,736 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883. Plenty of good unimproved lands can be had at prices ranging from $4 to $10 per acre. The stump lands are also plentiful, and are to be had at from $1 to $5 per acre. Foreigners appear to thrive on these lands, and just now there is a considerable demand for them among our own citizens. The highways are constructed on section lines, and are as good as the average highways throughout the State. The seasons are possibly a fortnight later than in the counties further south. Snow falls to a considerable depth, the ground seldom freezing.

The schools are plentiful and good, there being 68 school districts in the county. Lumbering, the cutting of ties, posts, and poles, river driving, tan-bark peeling, the manufacture of shingles, and agriculture, are the principal industries. There is a good demand for labor on farms and in the lumbering districts, wages ranging from $1.50 to $2.50 per day. The Flint and Pere Marquette, the Grand Rapids and Indiana, and its Luther branch, are the present railroad outlets. There are also several logging roads which penetrate the forests to a considerable distance.

OSCODA COUNTY.

Oscoda county was organized in 1881. It is bounded on the north by Montmorency, on the east by Alcona, on the south by Ogemaw, and on the west by Crawford. It has an area of 576 square miles, and had a population in 1880 of 467. Mioe, a small village of 100 inhabitants, is the county seat.

About one-third of the county is hard timbered land, with an undulatory surface. Another third is covered over, more or less, thickly with pine timber, and the remaining third is a comparatively level plain covered with a growth of small timber, generally of the spruce pine variety. The soil is of a heavy clay variety on the heavier timbered lands, and of a sandy and gravelly nature on the pine lands and plains. The subsoil varies from a clay to coarse gravel. The county is well watered by the Au Sable, a large and rapid stream, which traverses in its windings about 40 miles of territory before it leaves the county. There are also numerous smaller streams, some of them in the northern part forming the head waters of the Thunder Bay river. As indicated above the timber on the heavier lands is principally beech, maple, oak, ash, and basswood. On the pine lands it is Norway and white pine and cedar

while on the plains it is small oak, spruce pine, etc. The range of crops is quite varied. Root crops do remarkably well. Wheat is successful, even on the plain. Clover is also uniformly successful where the land has been worked for two or three years. The timbered portions are well adapted to grass. Potatoes are raised in large quantities for the many lumbering camps in this and adjoining counties. On the plains rye and buckwheat are sure to succeed as first crops, and field peas, sown broadcast, would probably do well preparatory to putting in winter wheat. After the first plowing a greater range of crops is admissable. Fruit growing is in its infancy in this county, yet there are many young orchards which are growing rapidly and do not winter-kill.

The lightly timbered lands can be cleared at from $1 to $4 per acre, while the expense on the heavier timbered lands will average from $10 to $15. There were 67,000 acres of government, 1,196 acres of State swamp, 5,280 acres of primary school, 15,604 acres of Agricultural College, and 2,150 acres of Jackson, Lansing and Saginaw railroad land, subject to entry May 1st, 1883.

Unimproved lands range in price from 50 cents to $5 per acre, according to the amount of timber and location. The "stump lands," which were originally timbered only in part with pine, prove to be excellent for farming purposes, and are held at the same price as unimproved lands. There is a State road along the Au Sable river, running east and west. The local roads are easily built and are smooth and passable at all times of the year. The winters are a little longer, and fall and spring somewhat shorter than farther south. Snow falls early, from six inches to two feet in depth.

The schools are in a primitive condition as yet, but the people are wide awake on this subject, and have already 12 school districts in the county. Lumbering is the principal local industry, there are from 12 to 15 lumbering camps, and it will be a dozen years before active operations in this line decline. Labor is in good demand in the lumber camps, wages ranging from $18 to $26 per month, with board. A railroad is surveyed from Beaver Lake in Ogemaw county, on the Mackinac division of the Michigan Central, through to the Au Sable river. This will contribute largely to an early settlement of those portions of the county contiguous to it.

OTSEGO COUNTY.

Otsego county was organized in 1875. It is bounded on the north by Charlevoix and Cheboygan, on the east by Montmorency, on the south by Crawford, and on the west by Antrim and Charlevoix. It has an area of 540 square miles, and had a population in 1880 of 1,974. Gaylord, a town of 700 inhabitants, is the county seat. It is pleasantly located near the center of the county, and has an elevation of 800 feet above Lake Huron. In fact this county is the highest in the lower peninsula, and its climatic advantages are unexcelled.

The surface is generally level, the north half more rolling, particularly a belt running northwest and southeast, just north of the center of the county. This belt has some nicely improved farms, yet is rather hilly. Several of the large streams of the State have their headwaters in this county, viz., the Au Sable, the Manistee, and the Cheboygan. Small streams and inland lakes are quite numerous. There are some cedar swamps in the northwestern towns, which are all reclaimable. There are also some sand plains in the southeastern and northeastern portions of the county which, it is thought, will make good farming lands. There are several available water powers on the larger streams. The soil is generally sand and gravelly loam with a heavy subsoil in some places. The timber is maple, elm, basswood, and hemlock, and about one-fourth of the county contains some pine. Winter and spring wheat, potatoes, and root crops of all kinds are raised successfully. Owing to the frosts corn is not a certain crop. Peas, oats, and rye are staple crops. Grass and clover also do well. The orchards are as yet young, but the prospects are very flattering for a successful fruit country.

The plains cost $5 per acre to clear, while the timbered lands average $20. There are good markets for wood along the railroad, four foot wood bringing $1.70 per cord. There were 200 acres of government, 6,852 acres of State swamp, 4,435 acres of primary school, 4,073 acres of Agricultural college, 74,490 acres of Jackson, Lansing and Saginaw railroad, and 520 acres of Grand Rapids and Indiana railroad land subject to entry May 1st, 1883. Large tracts of beech and maple land, unimproved, can be had at prices ranging from $4 to $10 per acre. These lands are in good demand. The "stump lands" are also numerous and cheap. They have not been extensively cultivated, but as far as tested produce well. A State road running east and west between Lake Michigan and Lake Huron, passes through the center of the county.

Another State road is being built between Gaylord and Petosky. The local highways are universally good. The first snow falls in November, to an average depth of 18 inches. The ground seldom freezes, and spring work begins with the melting of the snow in April. Potatoes are often kept in the hill all winter.

The schools are numerous and well attended. Lumbering and agriculture are extensively engaged in, and large quantities of cedar is made up into ties, posts, and poles. There is also considerable charcoal burning. These enterprises create a good demand for labor and farm products. The Mackinac division of the Michigan Central railroad passes through the center of the county, and the Grand Rapids and Indiana railroad passes through the northwest corner, making all of the lands accessible to good markets.

OTTAWA COUNTY.

Ottawa county was organized in 1837. It is bounded on the north by Muskegon, on the east by Kent, on the south by Allegan, and on the west by Lake Michigan. It has an area of 540 square miles, and had a population in 1880 of 33,126. There are about 10,000 Hollanders, located principally in the southern part of the county, where they have a prosperous colony. Grand Haven, a city of 4,861 inhabitants, situated at the mouth of Grand River, is the county seat.

Much of the surface of the county is level; the balance is gently rolling, and all susceptible to drainage. The Grand river flows through the county from east and west. It is navigable for small vessels as far up as Grand Rapids. The county is also watered by the Bass, Black, and Pigeon rivers, Crockery, Deer, Sand, and other creeks, and by Black, Pigeon, and Spring lakes. There is a large stretch of swamp or wet prairie, which is all reclaimable, and has a rich soil, raising fine grass. The entire county, by proper and inexpensive cultivation, could be made arable and adapted to grazing. There are no water powers, owing to the level character of the land. The soil is principally of a sandy nature with a subsoil of gravel. There is some loam with a clay subsoil in different sections throughout the county.

The timber is oak, beech, maple, and pine. Corn, wheat, and all cereals, root crops and garden vegetables flourish in the warm quick soil, while the fruits cannot be excelled. This county lies in the celebrated fruit belt of western Michigan, and peaches, pears, apples, plums, cherries, currants, and grapes grow in great abundance, and are shipped to the Chicago and Milwaukee markets, where there is a great demand for Michigan fruit.

The cost of clearing averages from $12 to $15 per acre. Wood finds a ready sale throughout the county, hard-wood bringing from $4 to $5 per cord, and soft-wood from $2 to $2.50. There is no government land in the market, with the exception of one 80-acre tract. There were 1,133 acres of primary school land, 40 acres of State building land, and 67 acres of university land, subject to entry May 1, 1883. The stump lands of the county are receiving considerable attention, and no doubt will develop into good fruit and farming lands. They are held at prices within the reach of all. Improved farms range in price from $30 to $100 per acre. Good wagon roads bring all parts of the county into easy communication with the markets. The lake winds moderate both extremes of temperature. The average temperature for the month of January, during the last ten years, was 26° Fahr., while the average temperature for June was 62.7°.

The schools of the county are very prosperous. At Holland is located Hope college, an institution extensively patronized by local and non-resident Hollanders. Agriculture is the principal industry. Large amounts of pine and some hard-wood are produced annually. It is expected that an iron furnace will be built within the county during the coming year. One of the largest flouring mills in the State has recently been built at Holland. Large machine shops and engine works are located at Ferrysburg. Labor is in fair demand, both on farms and among the lumbering and manufacturing industries, wages ranging from $1 to $1.25 per day for common labor. Skilled labor commands proportionately higher wages. The Chicago and West Michigan, its Grand Rapids branch, and the Detroit, Grand Haven and Milwaukee railroads traverse the county. The lake ports also afford excellent shipping facilities, and enjoy an extensive commerce.

PRESQUE ISLE COUNTY.

Presque Isle county was organized in 1871. It is bounded on the north by Cheboygan and Lake Huron, on the east by Lake Huron, on the south by Montmorency and Alpena, and on the west by Cheboygan. It has an area of 756 square miles, and

had a population in 1880 of 3,113. Rogers City, situated on Lake Huron, a town of 325 inhabitants, is the county seat.

The surface of the county is rolling. It is watered by the Ocqueoc, Rainy, Swan, Trent, north branch of Thunder Bay, and Black Rivers, and by innumerable spring brooks. Black Lake, Long Lake, and Grand Lake are large inland lakes, filled with many choice varieties of fish. Excellent water powers are found on all the larger streams. Near the shores of Lake Huron are found the pine plains, or pine openings, peculiar to this part of Michigan. There is considerable swamp land covered with cedar, occupying, perhaps, one-fourth of the county. The soil is sandy along the lake shore, yet a few miles back it consists of a sandy loam with red clay for subsoil. Marl is sometimes found to be the subsoil. The timber is beech, maple, of the bird's-eye and curly varieties, basswood, ironwood, birch, white and black ash, cedar, pine, poplar, hemlock and spruce. Wheat, potatoes, peas, and barley do remarkably well, and are sure crops. Certain varieties of corn succeed. Rye, oats, hay, and all sorts of garden vegetables are raised in abundance. The people raise the most of the tobacco consumed in the county. Apples, peaches, plums, grapes, etc. are also raised in quantities sufficient for home consumption, while whortleberries, sand cherries, and red raspberries are indigenous to the soil. Thousands of bushels are gathered annually and sold to the steamers.

The cost of clearing averages from $15 to $20 per acre. The hardwood timber is cut in 10 feet lengths, and sold at Crawford's quarry and Rogers City. From $2 to $2.25 is paid for hardwood, and 20 cents each for cedar ties. There were subject to entry May 1st, 28,320 acres of government, 25,107 acres of State swamps, 9,628 acres of primary school, and 680 acres of Agricultural college land. Large bodies of unimproved lands, located within seven miles of Rogers City, are in the market at prices ranging from $5 to $10 per acre. The pine and cedar lands are held at from $5 to $40 per acre. Some of the best farms in the county have been made out of the "stump lands." Oftentimes excellent clay soil is found on these lands, from which the pine has been cut. The Alpena and Duncan City State road runs through the county from the southeast to the northwest. The Presque Isle and Little Traverse State road runs 50 miles through the county from east to west; its Ocqueoc and Alpena branches, each being 12 miles in length. Snow falls early in December to an average depth of two or three feet, the ground seldom freezing. The seasons are about a fortnight later than at Detroit, plowing usually beginning by the last of April.

The schools are few in number, but are well kept and well attended. Lumbering is the principal industry, eight camps being in active operation during each winter. Wood, ties, posts, and telegraph poles are shipped in large quantities from all of the lake shore towns. Fishing is also an important industry. Common labor is in good demand at all seasons of the year, wages ranging from $1.50 to $1.75 per day. The demand for skilled labor will increase rapidly as the county improves. During the season for navigation steamers call regularly at Rogers City, Crawford's quarry, and Presque Isle Harbor. Every inducement is held out to labor or capital in search of employment. There are good openings for the manufacture of wooden ware, furniture, etc. A tannery is also a much needed institution. Hardware and agricultural implements are in good demand. A bed of sulphur has recently been discovered, a circumstance which at once suggests a number of enterprises. Lands are cheap, the soil is good, the climate salubrious, railroads are an assured fact, and every thing points to a speedy development of the county.

ROSCOMMON COUNTY.

Roscommon county was organized in 1875. It is bounded on the north by Crawford, on the east by Ogemaw, on the south by Gladwin and Clair, on the west by Missaukee. It has an area of 576 square miles, and had a population in 1880 of 1,459. Roscommon, an enterprising town of 700 inhabitants, located in the northern part of the county, is the county seat.

The surface of the county is for the most part level, interspersed with ridges. It is well watered by the south branch of the Au Sable and the head waters of the Muskegon rivers, also by Houghton, Higgins, and other lakes. There is considerable swamp land in the county, nearly all of which, when reclaimed, would make admirable meadow lands or cranberry marshes. The altitude of the county is such that there are streams flowing both east and west, and the fall is such as to make plenty of available water power on several of the larger streams. There is considerable land known as "sand plains," some of which is already taken up by homesteaders. The soil is a sandy loam on the high lands, with a fair percentage of clay. There is generally a sandy subsoil on the lower lands, near the marshes and streams.

The timber is principally white, Norway, and spruce pine, with occasional belts of beech, maple, oak, cedar, tamarack, spruce, and balsam. Potatoes have thus far been the most successful crop on the heavier timbered lands, although the earlier and hardier varieties of corn can be as successfully produced as in any part of the State. But little attention has been paid to the raising of the cereals, owing to the lack of milling facilities, but wherever tests have been made, the results have been uniformly good. Wheat, oats, rye, buckwheat, and millet have yielded very satisfactory crops. It has been suggested that the experiment of planting amber cane be tried on the lighter soils, as this cane has been grown very successfully on light soils in other parts of the State.

There are a number of young orchards with flattering prospects of future success. The hardier varieties of apples should always be chosen in setting out trees. Berries grow in great abundance.

The cost of clearing varies from $5 to $15, according to the kind of timber on the lands. There are good local markets for wood along the line of the railroad, hard-wood bringing $1.50 per cord, stove length, and soft-wood from 75 cents to $1. There were 11,400 acres of government, 16,207 acres of State swamp, 3,623 acres of primary school, and 37,697 acres of Jackson, Lansing and Saginaw railroad land subject to entry May 1, 1883. There are large tracts of "stump land," which have a good soil, and make very desirable farms, and can be had at prices ranging from $1 to $2.50 per acre. There is a State road running from Roscommon, via Houghton Lake, to Midland, also a complete system of local roads, which, owing to the sandy nature of the soil, are always in a good condition. Snow falls by November 1st to an average depth of 16 inches, the ground freezing but little. Plowing begins from the first to the middle of May.

The schools are as yet few, but compare favorably with those of the surrounding counties. Lumbering is, and will be for years, the principal industry. Wood, ties, posts, and telegraph poles are gotten out in vast quantities, employing a large number of men, wages ranging from $20 to $30 per month with board. The Mackinac division of the Michigan Central railroad passes through the county, affording excellent market facilities. There are also one or two logging roads in the southern part of the county. Higgins Lake is a delightful summer resort, and is visited every season by a large number of hay fever and asthmatic patients, who generally find speedy relief.

SAGINAW COUNTY.

Saginaw county was organized in 1835. It is bounded on the north by Midland and Bay, on the east by Tuscola, on the south by Shiawassee and Genesee, and on the west by Midland and Gratiot. It has an area of 828 square miles, and had a population in 1880 of 59,095. Saginaw City, a flourishing town of 11,000 inhabitants, is the county seat. East Saginaw, a town of 20,000 inhabitants, the fourth city in the State, is situated just across the river, and the two are rapidly forming one of the largest manufacturing centers in the northwest.

The surface of the county is very level, yet there is sufficient diversity to afford excellent drainage. No county in the State is better watered; the Saginaw, Flint, Cass, Shiawassee, and Tittibawassee rivers and their tributaries traversing the county in every direction. The Saginaw river is navigable for large vessels for over eighteen miles. There is a considerable quantity of low land, which might be called swampy, yet most of it is reclaimable. The general character of the soil near rivers and on low lands is sandy, on higher lands a gravelly loam, the subsoil invariably being clay. In some localities a clay soil predominates.

The timber is mainly ash, oak, basswood, elm, pine, maple, and beech. Wherever the lands have been properly drained all crops grow with success. The hay crop, in particular, is generally very abundant. Garden vegetables are especially successful. Fruit growing has been thoroughly tested, and nearly all fruits can be raised in favorable seasons. Peachers and the more tender varieties of cherries, however, are often killed during the winter.

The cost of clearing will average from $10 to $25 per acre. Good wood markets are found on every hand, hard wood, four feet in length, bringing from $3 to $5 per cord, and soft wood from $2.25 to $2.50. There were subject to entry on May 1st, 1883, 1,914 acres of State swamps, 1,200 acres of Jackson, Lansing and Saginaw railroad, and 2,500 acres of Flint and Pere Marquette railroad land. There are plenty of good unimproved lands near the railroad stations to be had at prices varying from $8 to $40 per acre. These lands and the few remaining stump lands are in great demand, and will soon be out of the market. The highways of the county are generally good, since particular attention is paid to their condition every season. A light

snow usually falls early in December, but the main fall does not occur before the last of the month. The ground freezes to an average depth of 16 inches, and plowing is generally delayed until April 15th, at which time the frost is entirely out of the ground.

The public schools are all first-class, and are made the subject of special attention on the part of all classes of people. Lumbering and the manufacture of salt are the principal industries. Other manufacturing enterprises are multiplying rapidly. New saw, axe, file, barrel, furniture, and engine factories are springing into existence, creating a steady demand for labor, wages ranging from $1.50 to $2.00 per day, or at from $18 to $25 by the month with board. Ties, staves, and bolts are gotten out in large quantities. Charcoal is burned at several points in the county. The Flint and Pere Marquette railroad and its various branches, the Jackson, Lansing and Saginaw, the Saginaw Valley and St. Louis, the Port Huron and Northwestern, and the Saginaw branch of the Detroit and Bay City railroads are the outlets for the enormous productions of this county. The Flint and Pere Marquette railroad has extensive shops at East Saginaw, employing a large number of men. The lake commerce of this county is very considerable, and during the season for navigation the Saginaw river is lined with vessels of every description, which transport to other lake ports the salt, lumber, grain, and other products of the great Saginaw valley.

SANILAC COUNTY.

Sanilac county was organized in 1848. It is bounded on the north by Huron, on the east by Lake Huron, on the south by St. Clair and Lapeer, and on the west by Tuscola and Lapeer. It has an area of 990 square miles, and had a population in 1880 of 26,341. Sandusky, a village of about 200 inhabitants, is the county seat.

Along the extreme eastern and western boundaries, and also through the central portions of the county the surface is comparatively level; between these lines are ridges, gradually breaking into short hills which form the water-shed of the county. The general appearance might be decided as undulatory. Through the center of the county extends the so-called "great swamp," which is rapidly being drained and cultivated, proving itself among the most fertile and productive land in the State. The county is watered by the Black and Cass rivers, Elk creek, and numerous smaller streams, many of the latter flowing into Lake Huron. There are desirable water powers on Black river and some of the creeks. The soil along the lake shore varies from sand to clay, but is nowhere unproductive. On the ridges it is generally clay, with occasional patches of lighter soil. The subsoil is generally clay. The timber is mainly beech, maple, pine, hemlock, birch, and oak, with ash and cedar on the low lands. Wheat, barley, and oats are the staple crops. Corn and beans are also successfully cultivated. Potatoes and garden vegetables are raised in abundance throughout the entire county. The reclaimed swamp lands are especially valuable as meadow lands, and the business of cutting and shipping hay has become extensive and profitable. In the older townships, fruit raising is already an important industry. Young orchards present a thrifty appearance in the newer townships, and the future of this county as a fruit growing region is well assured.

The cost of clearing lands has been greatly reduced by the great fires of 1881, the present cost averaging from $6 to $15 per acre. Good wood markets are found along the line of the Port Huron and Northwestern railroad. Hard wood brings from $2 to $3 per cord, and soft wood from 75 cents to $1. There were 143 acres of State swamp, 1,280 acres of primary school land subject to entry May 1, 1883. Government lands are no longer in the market. Plenty of good unimproved agricultural lands are to be had at prices ranging from $5 to $15 per acre. They are near market, have a good soil, and are rapidly increasing in value. There are also large tracts of "stump lands" which have enough timber on them for domestic use, and can be had at correspondingly low prices. Some of the best farms in this county have been made out of these lands. Improved farms range in price from $20 to $50 per acre, according to the location.

The Forestville and Tuscola, Sanilac and Tuscola, Lexington and Lapeer, lake shore north and south road, and the Lexington and Minden State roads thoroughly open up the county. The first snow falls in December, the depth varying with the season. Oftentimes there are five or six weeks of good sleighing. Plowing usually begins in April.

School districts are organized in every township. The school buildings are generally comfortable, and the schools themselves exceptionally good. Agriculture is the principal industry, although considerable lumbering is still done. Large quanti-

ties of posts, ties, and telegraph poles are gotten out every season, creating a steady demand for labor at wages ranging from $20 to $26 per month with board. The Port Huron and Northwestern railroad extends through the county in two divisions; the Sand Beach division running from south to north into Huron county, at a distance of from six to twelve miles from the lake shore, and the Saginaw division running in a northwesterly direction from Port Huron, and passing through the southwest portion of the county, touching at Marlette. Lexington, on the lake shore, 12 miles north of Port Huron, is the largest town in the county. It has a fine flouring mill, a woolen mill, foundry, two planing mills, and a large interior trade. It is visited regularly by several lines of steamers during the season for navigation.

SCHOOLCRAFT COUNTY.

Schoolcraft county was organized in 1876. It is bounded on the north by Lake Superior, on the east by Chippewa and Mackinac, on the south by Delta and Lake Michigan, on the west by Delta and Marquette. It is the fourth county in the State in size, and has an area of 2,196 square miles. Manistique, a growing town of 700 inhabitants, situated in the southern portion of the county on Lake Michigan, is the county seat.

The northern and northwestern portions of the county are heavily timbered with white pine of good quality, growing on land also heavily timbered with maple, birch, and basswood. The soil in this section is a sandy loam. The middle and western part comprises what is known as the Manistique flats—lands generally level, but with a descent to the southeast sufficient for drainage. These lands have been largely overflowed, occasioned by beaver dams in the numerous streams or branches of the Manistique. The soil is a vegetable deposit or muck with a subsoil of marl, clay, and sand, underlaid with lime rock. Large marshes are interspersed with grass of the finest quality. The timber is principally pine on the ridges, and spruce, cedar, etc., near the rivers. The eastern and southern portions are more rolling and timbered with hardwood maple, birch, basswood, and elm on the highlands, and cedar, pine, and hemlock on the lower lands. The soil is a dark sand loam on lime rock and clay, and is a very desirable agricultural region. Homestead entries are numerous and the settlers prosperous. This portion empraces a portion of the Manistique lake region. The county is well watered by the Manistique and its numerous tributaries, the head waters of the Sturgeon and Whitefish rivers, and numerous smaller streams which flow into Lake Michigan or Green Bay, also by the Chocolate and Au Sable rivers which flow into Lake Superior. Any number of fine water powers are to be found on the Manistique and its branches. Wheat, oats, grass, and all sorts of garden vegetables grow abundantly in this county. The seasons are generally too short for corn, although occasionally good crops have matured. Crops generally mature in this latitude much more rapidly than farther south. Wheat yields from 30 to 40 bushels to the acre. Potatoes from 250 to 350 bushels. In fact the latter crop never fails, and the quality cannot be excelled. Cabbages and other vegetables attain an enormous growth. Fruits, as a rule, have not been successful, but currants, cherries, strawberries, cranberries, and huckleberries grow to great perfection.

The cost of clearing, including fencing, averages from $20 to $30 per acre. Good wood markets are found along the line of the Detroit, Mackinac and Marquette railroad, and at the villages and mills along the lakes. Hard wood sells in Manistique at from $2.50 to $4 per cord. At the kilns in the north part of the county wood brings $2 per cord. There were 80,400 acres of government, 40 acres of State swamp, 33,241 acres of primary school, 21,482 acres of Lake Superior ship canal, 378,300 acres of Detroit, Mackinac and Marquette railroad, and 73,600 acres of Chicago and Northwestern railroad land, for sale May 1st, 1883. There are large tracts of good, unimproved agricultural lands within a few miles of settlements, having a strong clay soil with limestone foundation, which can be had at prices ranging from $1.25 to $6 per acre. The "stump lands" of this county have not, as yet, come into the market as farming lands, owing to the cheapness and abundance of timbered lands. A state road extends from Manistique to Day's river in Delta county, 65 miles in length. Many roads have been cut through the county, none of which are complete, yet they are never very muddy, and are extensively traveled. Snow falls by December 15th, and remains until April 1st. The average depth is from two to four feet. Farmers plow in April and May, and plant early in June.

The schools of the county are few, but every effort is made to have them efficient. Lumbering, the cutting of ties, posts, and poles, and charcoal burning are the principal industries, employing a large number of men, at wages ranging from $26 to $30

per month with board in the lumber camps, and $1.50 to $2.00 at the mills. Skilled labor is proportionately higher. The Detroit, Mackinac and Marquette railroad passes through the county from east to west, and furnishes a good outlet for all of its products. There are good harbors on the shore of Lake Michigan, and favorable opportunities for getting out cedar and other varieties of timber. Settlers who now burn fine hard woods in clearing land would gladly furnish them to parties who would undertake the labor of removing them.

Schoolcraft county offers special inducements to the settler with limited means. The county has developed rapidly during the past two years, yet there is every prospect that the next few years will witness a vast change, owing to the fact that the attention of farmers, mechanics, and manufacturers has been attracted by the reports of the wonderful advantages offered to every branch of business by this great county.

SHIAWASSEE COUNTY.

Shiawassee county was organized in 1837. It is bounded on the north by Saginaw, on the east by Genesee, on the south by Livingston and Ingham, and on the west by Clinton. It has an area of 576 square miles, and had a population in 1880 of 27,059. Corunna, a town of 1,500 inhabitants, is the county seat.

The northern half of the county is comparatively level, while the southern half is more rolling. In the southern portion are also a number of sandy plains, and numerous marshes, some of which are quite extensive, and which have outlets in the Looking Glass river. The northern part of the county has several thousand acres of tamarack swamp and open marsh which are drained by the Shiawassee, Maple, and Bad rivers. These swamps are nearly all reclaimable, and are being ditched quite extensively. The principal water powers are on the Shiawassee river at Byron, Shiawasseetown, Corunna, Owosso, and Six-Mile Creek. The general character of the soil in the southern part of the county is sandy and gravelly, while in the northern portions it is of a clay and clay loam mixed with gravel. The subsoil is generally clay. The timber is oak, beech, maple, basswood, and elm. The staple crops are wheat, corn, oats, potatoes, and vegetables of all descriptions. As a wheat producing county, it stands in the first rank. Apples are the principal fruit crop, although pears, plums, the smaller fruits, and berries are raised in abundance, and are shipped in large quantities to the Detroit, Chicago, and Saginaw markets.

The cost of clearing will average from $10 to $12 per acre. There are a number of excellent wood markets on the line of the railroads. Hard wood brings $3 per cord, and soft wood $2. There are no government, State, or railroad lands in this county. Unimproved lands are generally held for the timber, and are worth from $12 to $15 per acre. Improved farms range in price from $30 to $100 per acre. The highways of the county are uniformly good. The Owosso and Mason and the Detroit and Grand Rapids State roads pass through the county. The first snow falls in December to an average depth of eight or ten inches. The first falls are light, and the ground freezes to a moderate depth. Plowing usually begins by April 15th.

The schools of this county are all in a first-class condition. The public schools of Corunna and Owosso attract a large non-resident attendance. Agriculture is the principal industry, though large manufacturing establishments have been erected in Owosso during the past few years, including furniture, mattress, and burial-case factories. A large coal mine is in active operation near Corunna, producing about 100 tons daily. The coal tract is estimated to cover hundreds of acres. The Detroit, Grand Haven and Milwaukee, the Jackson, Lansing and Saginaw, and the Chicago and Grand Trunk railroads traverse the county, affording excellent market facilities.

ST. CLAIR COUNTY.

St. Clair county was organized in 1821. It is bounded on the north by Sanilac, on the east by Lake Huron and St. Clair river, on the south by Macomb and Lake St. Clair, and on the west by Lapeer and Macomb. It has an area of 720 square miles, and had a population in 1880 of 46,197. Port Huron, a city of 8,900 inhabitants, situated at the head of St. Clair river, is the county seat.

The surface of this county is generally level, although there are portions of several townships which are quite rolling. There is considerable swamp land scattered over the county, nearly all of which is reclaimable. There is also considerable sandy land along the lake shore. The county is well watered by the Black, Belle, and Pine rivers, also by Smith and Mill creeks, and numerous smaller streams. Owing to the level character of the land there is but little water power to be found. The general character of the soil is a clay loam with a clay subsoil. The only exceptions are

found in the townships of Fort Gratiot, Clyde, Kimball, and Port Huron, where much of the soil is sandy. A clay subsoil underlies the sand, excepting in some portions of Fort Gratiot township, where the sand is very deep. The timber is maple, beech, oak, elm, and some scattering pine. Hay is the staple crop, although wheat and other cereals are raised successfully. The lighter soil is especially adapted to vegetables, which are raised in great quantities for the Port Huron market. Apples, plums, cherries, and some varieties of grapes are grown in this county with success. Thousands of bushels of apples are shipped every year to Lake Superior ports.

Clearing costs from $5 to $15 per acre, according to the density of the timber. Wood finds a ready market at prices ranging from $3.50 to $4.50 for hard wood, and $2 to $3 for soft wood. There are no government or railroad lands in this county. There were, however, 890 acres of State swamp and 260 acres of primary school land, subject to entry May 1st, 1883. There are plenty of unimproved agricultural lands near the railroads, which can be had at prices ranging from $10 to $25 per acre. There is also considerable stump land, with the very best of soil, to be had at moderate prices. The Port Huron and Detroit, the Romeo and St. Clair, and the Port Huron and Lexington State roads run through the county in different directions. The local roads are constructed on section lines, and as a rule are kept in a fair condition. Snow falls in December and disappears by the last of February. Plowing begins in April, or as soon as the frost is out of the ground.

The schools of the county have improved rapidly during the past few years. The public schools of Port Huron are especially deserving of mention, as they sustain a high reputation, not only at home, but all through the "Thumb" peninsula, and even in Canada. Agriculture, lumbering, charcoal burning, the manufacture of staves, etc., and fishing are the principal industries. One of the richest salt beds in the United States has recently been discovered at Marine City. These enterprises create a steady demand for common labor at wages ranging from $15 to $22 per month with board. The Chicago and Grand Trunk, the the Detroit branch of the Grand Trunk, the Port Huron and Northwestern, its Lake Shore branch, its Almont division, and a branch of the Canada Southern railroads traverse the county. Port Huron is very favorably situated as to its shipping advantages, and no doubt will become a great manufacturing center. It is already the seat of a flourishing commerce, and its docks and harbors are lined with vessels of every description from the opening to the close of navigation. At Marine City are located ship yards where some of the largest of lake vessels are constructed, while at the city of St. Clair are the celebrated Oakland mineral springs, which are visited annually by thousands of people, and which have the best of hotel and bathing facilities. St. Clair as a county is admirably adapted to grazing, and already attention has been directed to the subject of stock raising, which will eventually prove one of the most important enterprises of the county.

ST. JOSEPH COUNTY.

St. Joseph county was organized in 1829. It is bounded on the north by Kalamazoo, on the east by Branch, on the south by the State of Indiana, and on the west by Cass. It has an area of 504 square miles, and had a population in 1880 of 26,626. Centerville, a town of over 700 inhabitants, is the county seat.

The county is generally level, containing, as it does, some of the largest prairies in the State. A few townships, however, are slightly rolling. It is watered by the St. Joseph, Nottawa, Swan, Hog, Faun, Crooked, and Portage rivers; also by numerous smaller streams and inland lakes. There is a large amount of available water power, as most of the streams are quite rapid. There are no barren sand plains, and but little swamp land, as the low lands have been drained, and are under cultivation. The soil on the prairies and burr-oak plains is a black loam; on the white oak openings a clay loam; on the yellow oak lands a sandy loam, and on the beech and maple lands it is a clay and sandy loam. The subsoil is uniformly clay wherever the surface soil is of clay, and sandy wherever sand predominates in the upper soil. The timber is burr, white, and yellow oak, maple, beech, ash, elm, hickory, whitewood, and black walnut. Wheat, corn, oats, rye, barley, potatoes, buckwheat, and beans are raised and shipped in large quantities. Wheat generally averages from 20 to 25 bushels to the acre, and other crops do proportionately well. Pepper and spearmint, wormwood, and tansy are extensively cultivated for their oils, which are distilled here and sent to foreign countries. Mint yields from 20 to 30 pounds to the acre, as a first crop, worth from $2 to $2.50 per pound. The second crop yields from 10 to 20 pounds, worth from $1.25 to $1.50 per pound. Apples, quinces, plums, and all sorts of berries are shipped to the Chicago and other western markets. Peaches do well if not winter-killed.

It costs about $15 per acre to clear the heavy bush lands. Timbered lands are generally held for domestic purposes, hard wood four feet in length bringing from $3 to $4 per cord. There are no government, State, or railroad lands in this county. Improved farms are worth from $30 to $120 per acre, according to location and improvements. The highways of the county are universally good. Snow falls by Dec. 1st, and generally has an average depth of one foot. The ground usually freezes to a moderate depth, and plowing begins by April 1st.

The country and village schools are all regarded as excellent. Agriculture is the principal industry, creating a good demand for farm labor. The attention of the manufacturer is being turned toward the water powers of this county, and there is every reason to suppose that a number of manufacturing establishments will be erected along its rivers during the next few years. The Michigan Central Air Line, the Grand Rapids and Indiana, a branch of the Michigan Southern, and the Chicago and Grand Trunk railroads traverse the county.

TUSCOLA COUNTY.

Tuscola county was organized in 1550. It is bounded on the north by Huron and Saginaw Bay, on the east by Sanilac and Lapeer, on the south by Genesee and Lapeer, and on the west by Saginaw, Bay, and Saginaw Bay. It has an area of 720 square miles, and had a population in 1880 of 25,738. Vassar, a town of 1,650 inhabitants, is the county seat.

The surface of the county is gently rolling, and is well watered by Cass river, White creek, and numerous smaller streams, which effectually drain all of the low lands. The Cass and its tributaries float the timber product of the county and furnish excellent water power in several localities. Most of the western portion of the county has a clay loam surface, with a stronger clay subsoil, with occasional drifts or patches of sandy loam or gravel. The eastern part of the county is more rolling, and has more gravel and less clay. The timber is beech, hard and soft maple, white and black ash, elm, oak, basswood, hickory, pine, hemlock, and cedar. The soil of the county produces all of the staple grains and grasses, as well as the root crops grown in this latitude. The wheat crop is the chief staple for export. Oats and corn do particularly well, oats often yielding as high as 100 bushels to the acre. Apples, peas, cherries, the smaller fruits and berries are successfully raised and shipped in large quantities to the Detroit and Saginaw markets. Peaches are not a success, save in a few favored localities.

The cost of clearing the timbered lands averages from $16 to $20 per acre, while on the burned lands it will average from one-half to one-third less. Good wood markets are found along the railroads, and at the extensive coal pits. There are no government or railroad lands in the county. They were, however, 1,155 acres of primary school land subject to entry May 1st, 1883. There are good unimproved agricultural lands in nearly every township in the county, not in large tracts, but convenient to schools and markets, which can be had at prices ranging from $10 to $20 per acre. There are also plenty of "stump lands" along the Cass river, which are developing into fine farms, and are held at from $5 to $10 per acre. The Goodrich and Lower Saginaw, the Port Huron and Bay City, the Tuscola and Bay, and the Cass River, Unionville and Bay City State roads were constructed years ago, and very materially aided in opened up the county. The local highways are generally located on section lines, and are kept in a good condition. The winters vary, snow generally falling to a depth of 15 inches, but not before January 1st. The ground freezes from three inches to three feet in depth, owing entirely to the depth of show and its exposed situation. Spring work usually begins by April 15th, and all spring crops should be in by May 15th.

The country schools are well cared for, and the union or graded schools of the larger villages compare favorably with those of the neighboring counties. Agriculture, lumbering, charcoal burning, and the cutting of ties, posts, and telegraph poles are the more important industries, creating a steady demand for labor at wages ranging from $16 to $20 per month with board. The Detroit and Bay City division of the Michigan Central, its Caro and East Saginaw branches, the Port Huron and Northwestern, the East Saginaw, Tuscola and Huron, the Pontiac, Caseville and Port Austin, and the Watertown extension of the Flint and Pere Marquette railroads traverse the county. Tuscola county offers great inducements to the manufacturer. There are good openings for agricultural implements, furniture, and wooden ware manufactories, with the best of shipping facilities. Stock grazing, too, is destined to become one of the important industries of the county, as good markets are on every hand, where the best of prices are paid the year round.

VAN BUREN COUNTY.

Van Buren county was organized in 1837. It is bounded on the north by Allegan, on the east by Kalamazoo, on the south by Cass and Berrien, and on the west by Berrien and Lake Michigan. It has an area of 630 square miles, and had a population in 1880 of 30,807. Paw Paw, a town of 1,500 inhabitants, is the county seat.

The surface of the county is gently rolling and is well watered by the Dowagiac, Paw Paw, and the south branch of the Black river; also by numerous smaller streams and beautiful inland lakes. There are a number of water powers in the county, nearly all of which are improved. The soil varies from a sandy loam to a heavy clay. The timber is oak, maple, beech, whitewood, ash, elm, and some pine and hemlock in the northwestern and northeastern parts of the county. The principal crops are wheat, corn, oats, rye, barley, beans, buckwheat, clover seed, timothy seed, potatoes, and vegetables. Apples, peaches, pears, grapes, and the smaller fruits are shipped in large quantities to the eastern, southern, and western markets. Berries are generally marketed in Chicago.

The timber will pay well for the clearing of any of the unimproved lands in this county. Hard wood, four feet in length, is worth from $2 to $2.50 per cord. There are no government or railroad lands in this county. There were subject to entry May 1st, 1883, 360 acres of State swamp, and 243 acres of primary school land. There is but little timbered land in the market, as most of it is attached to improved farms and is held for fuel, posts, and building purposes, good oak timber being worth $6 per thousand in the tree. Improved farms are worth from $30 to $100 per acre, according to location, soil, and improvements. The winters are generally mild, the mercury seldom falling below zero. Snow falls to a depth of 15 inches, but melts early, and spring work is in active operation by March 20th.

The schools of this county are invariably good. Agriculture, hard-wood lumbering, charcoal burning, etc., are the main industries. Milling is carried on in every township. A blast furnace employs a number of men, and the factories for making bowls, staves, spokes, etc., are uniformly successful. Labor receives from $15 to $20 per month with board on farms, and from $1 to $2 per day in the villages. The Michigan Central, its South Haven branch, the Chicago and West Michigan, and the Toledo and South Haven railroads traverse the county. Other railroads are projected, which will add materially to its shipping facilities.

WASHTENAW COUNTY.

Washtenaw county was organized in 1826. It is bounded on the north by Livingston and Oakland, on the east by Wayne, on the south by Lenawee and Monroe, and on the west by Jackson. It has an area of 720 square miles, and had a population in 1880 of 41,848. Ann Arbor, a city of 8,100 inhabitants, is the county seat. At this place is located the University of Michigan, one of the largest educational institutions in this country, having an average yearly attendance of 1,400. Its various departments consist of literary, law, medical, chemical, dental, and scientific schools. Among the gentlemen comprising the various faculties, are men whose names are famous in the world of literature and science. At Ypsilanti is located the State Normal school, which has attained a high reputation among the Normal schools of the country, and has a large attendance both resident and non-resident.

The surface of this county is comparatively level, although along the Huron river, it is very rolling, and even hilly. It is well watered by the Huron, Raisin, and Saline rivers, also by many smaller streams and inland lakes. There is but little low land in the county. There are many fine water powers along the streams mentioned above. The Huron river has several paper mills and woolen factories along its banks, and there are still several excellent water powers near Ann Arbor which are as yet undeveloped. The soil varies in every township; clay alternating with sand or sandy loam, with a clay subsoil or a gravel mixed with clay. The timber is beech, maple, hickory, ash, and oak. The staple crops are wheat, oats, corn, potatoes, hay, and wool. Wheat will frequently average from 20 to 25 bushels to the acre. Other crops do proportionately well. Apples are raised in large quantities for the western markets. There is a peach belt in the vicinity of Ann Arbor which is almost certain to produce a fine crop each year. Small fruits and the hardier varieties of grapes grow in abundance throughout the county. Wood finds a ready sale at Ann Arbor, Ypsilanti, and the smaller towns, hard wood bringing from $4 to $5 per cord, soft wood from $3 to $3.75. There are no government, State, or railroad lands in this county. The only available lands are improved farms which are held at from $40 to $100 per acre. The unimproved lands are generally attached to such farms, and are very

valuable for their timber. The winters vary in this latitude. Plowing was done every month during the winter of 1881–2, as there was but a light snow fall. This did not occur, however, during the winter of 1882–3. The winter was of longer duration, and plowing began in the later part of April.

Good primary schools are found in every township, while the union or graded schools of the towns are very fine. The high schools at Ann Arbor and Ypsilanti are among the best preparatory schools in the west. Agriculture and manufacturing are the principal industries, creating a fair demand for labor at wages ranging from $15 to $25 per month with board, on farms, and from $1 to $1.50 per day in the factories. The Michigan Central, Toledo, Ann Arbor and Grand Trunk, Detroit, Hillsdale and Southwestern, Lake Shore and Michigan Southern (Jackson branch), Detroit, Lansing and Northern, and the Wabash railroads traverse the county, affording the best of shipping facilities.

WAYNE COUNTY.

Wayne county was organized before the act of Congress was passed establishing a government for Michigan Territory. By the treaty of peace between the Kingdom of Great Britain and the United States, by which their independence was acknowledged in 1783, Michigan, which had formed a part of Canada, became a part of the United States. But for various reasons the English Government still retained possession of the fort at Detroit, and for all practical purposes Michigan was treated as a part of Canada until after Jay's treaty in 1794.

On the 18th of August, 1796, while Michigan formed a part of the Northwest Territory and the seat of government was at Chilicothe in Ohio, Hon. Winthrop Sargeant, then acting as governor of the Northwest Territory during the temporary absence of General St. Clair, who was then governor, issued letters patent under the great seal of the territory, establishing the county of Wayne. The boundary of the new county as defined by Acting Governor Sargeant was as follows:

"Beginning at the mouth of the Cuyahoga river, upon Lake Erie, and with the said river to the portage between it and the Tuscarawa branch of the Muskingum, thence down the said branch to the forks at the carrying place above Fort Laurens, thence by a west line to the eastern boundary of Hamilton county (which is a due north line from the lower Shawnese town upon the Scioto river), thence by a line west northerly to the southern part of the portage between the miamis of the Ohio and St. Mary's river, thence by a line also west northerly to the southwestern part of the portage between the Wabash and the miamis of Lake Erie where Fort Wayne now stands, thence by a line west northerly to the most southern part of Lake Michigan, thence along the western shores of the same to the northwest part thereof (including the lands lying upon the streams emptying into the said lake), thence by a due north line to the territorial boundary in Lake Superior, and with the said boundary through Lakes Huron, St. Clair, and Erie to the mouth of the Cuyahoga river, the place of beginning."

It will be seen from this description that Acting Governor Sargeant was not very well acquainted with the territory which he incorporated into the new county. Even at this day it would be somewhat difficult to draw a map of Wayne county as then established. It comprised a considerable portion of the States of Ohio, Indiana, Illinois, Wisconsin, and nearly all of Michigan. The county seat was established at Detroit, which, amid all the numerous changes, still retains its position.

After the establishment of the Territory of Michigan by an act of congress, passed January 11, 1805, Detroit became the capital of the new Territory, and remained so during the entire existence of the Territory and afterwards of the State until 1846.

Wayne county still retains a very important position in the State of Michigan. Instead of having nearly 200,000 square miles, it has gradually diminished until now it has only about 1,000. Instead of covering the whole State with a large proportion of Ohio, Indiana, Illinois and Wisconsin, it is now bounded on the north by the counties of Oakland and Macomb, on the east by Lake St. Clair and the River Detroit, on the south by the county of Monroe, and on the west by the county of Washtenaw. It still, however, retains its relative importance. It ranks first in population, in commerce, and manufactures. Its industries are largely mechanical, although the county proper comprises a fine agricultural region, covered with valuable farms. Detroit, which for so many years was the seat of the fur trade with the Indians, has become one of the greatest railroad and manufacturing centers of the west, and the progressive spirit of its inhabitants, its great population and wealth, make it worthy of its position as the commercial metropolis of the great State of Michigan.

WEXFORD COUNTY.

Wexford county was organized in 1869. It is bounded on the north by Grand Traverse, on the east by Missaukee, on the south by Osceola and Lake, and on the west by Manistee. It has an area of 612 square miles, and had a population in 1880 of 6,815. Cadillac, a growing city of 2,700 inhabitants, is the county seat.

The surface of the country is greatly diversified, varying from gently rolling to decidedly hilly ranges, which constitute the divide between the waters of Manistee river and the basin of Clam lake and Clam river. The county is well watered by the Manistee and Clam rivers and their numerous tributaries. Clam lake, situated in the southeastern portion of the county, is a beautiful sheet of water, several miles in length, and its northern shores are lined with large saw-mills, which produce a vast amount of timber annually. But little swamp land can be found in the county. Excellent water powers, many of which are in use, are found in the northern townships. The general character of the soil is a sandy loam. The northern and central townships have a clay subsoil in many localities. On the pine lands the soil is generally sandy, yet where pine and hard wood are mixed the soil is a heavy clay loam. Along the streams the prevailing timber is pine, cedar, hemlock, birch, and ash; the hilly and more rolling portions are timbered with beech, maple, elm, basswood, etc. Wheat, rye, oats, barley, hay, potatoes, clover, and all sorts of root crops grow successfully in this county. Fruit has not received as much attention as the climate and soil will warrant, yet wherever the hardier varieties have been planted the results have been attended with marked success. The surplus productions of the county are consumed by the local lumbering camps.

The cost of clearing will average from $15 to $20 per acre, with fair wood markets along the line of the railroad. About 1,000 acres of government, 310 acres of State swamp, 3,400 acres of primary school, 24,560 acres of Agricultural college, and 92,426 acres of Grand Rapids and Indiana railroad lands, were subject to entry May 1st, 1883. Large tracts of unimproved land, with good soil, and within easy reach of markets, are for sale at prices ranging from $4 to $12 per acre. Plenty of "stump lands" desirable for farming purposes can be had at a low figure. Improved farms are proportionately higher. A State road, running north and south, bisects the county, crossing the Manistee river at Sherman; another State road connects Manton with Sherman. The local highways are uniformly good. The seasons are well defined. Snow falls in November to an average depth of 30 inches, and the ground seldom freezes. Potatoes are kept in the ground all winter. Plowing begins by the last of April.

The school districts are numerous, and every effort is made to sustain good schools. Lumbering is as yet the principal industry. Portable mills are being stationed at different points to work up the hard wood timber, and large quantities of posts, poles, and ties are gotten out every year. Labor is always in good demand, wages averaging $22 per month with board. The Grand Rapids and Indiana railroad traverses the county from north to south, and a branch of the Chicago and West Michigan will eventually reach Cadillac from the southwest.

Every inducement is held out to the energetic settler with small means to make his home in this county. Lands are cheap, the soil is good, the privileges of schools and churches are unexcelled by any of the new counties, and the climate is a very desirable one. Within the next ten years vast changes may be looked for in this rapidly developing section.

COMMISSIONER OF IMMIGRATION.

In his inaugural message to the Michigan Legislature at the beginning of its biennial session in January, 1881, Governor Jerome used the following language:

"There are millions of acres of good farming lands in this State unoccupied. The building of the lines of railroad traversing the entire length of the lower peninsula north and south, together with the east and west roads lately completed, and the prospective completion at an early day of the Detroit, Mackinac and Marquette railroad, has opened and will open to easy access a vast extent of unoccupied farming lands. The influx of settlers upon these lands would add largely to the productive wealth and taxable resources of the State. Through the potent influences of the proper agencies, emigrants have been taken beyond Michigan, and great States have been built up west of us, and this largely by judicious systems of making known their advantages. No State or Territory east or west has advantages superior to those of Michigan. To secure our share of the emigrants now landing upon the shores of the United States, and of the surplus population of the eastern States, we should make known our resources, so rich, numerous, and varied—our fertile lands now in market at moderate prices, our admirable school system, and the many attractions offered to the emigrant who desires not only good soil and a healthy climate, but good markets, good government and pleasant social relations, which are assured by the general character and traditions of Michigan society."

In accordance with these suggestions the Legislature in June following passed a law authorizing the appointment of a Commissioner of Immigration, to act under the advice and direction of the Governor, "for the purpose," as declared by its terms, "of encouraging immigration to Michigan from the other States and from the counties of Europe." The obvious intent of this enactment was that its objects should be rought by giving wider publicity to the resources and characteristics of the State, and the direct methods which are employed in carrying it into effect are the diffusion of reliable information, the stimulation of inquiries among the people of "other States and countries," the acquisition through personal acquaintance and correspondence of facilities for prompt and intelligent replies, and direct intercourse or communication with parties seeking new fields of labor and enterprise. There is no design to solicit colonization for the sake merely of enlarging the number of inhabitants. What the State invites is men who will add to its industry, increase its resources, develop its soil, and take an interest in its prosperity, and this class are most effectively addressed through their intelligence and sense of thrift. Fortunately, the strongest claims that can be advanced in behalf of Michigan are contained in a simple statement of facts.

It is in pursuance of the will of the Legislature that this pamphlet is published. It has been prepared with scrupulous care to avoid mistakes or exaggerations, and it goes to the public with a full sense of the responsibility involved in the fact that it is issued under the sanction of the State. The figures which have been employed in its compilation have been taken from official sources, or have been furnished by recognized authorities, and the statements it contains are believed to be reliable. It is intended principally as an exposition of the general resources and characteristics of Michigan, and will serve, it is hoped, to elicit inquiries for more minute information.

In the furtherance of its work it is thought the office may also become useful in promoting a better knowledge among our citizens of the wealth and possibilities of their own State. If this knowledge shall be sufficient to satisfy young men of limited means, belonging to our own families in the older counties, that there are opportunities for them here in Michigan more promising than the attractions, seen through the

enchantments of distance, in the States and Territories of the remote and unsettled West, it will serve a double purpose. It is certainly true that in all the essentials of a healthy, comfortable, and prosperous home no State or territory can offer to self-helpful and industrious manhood more substantial advantages than this.

The coöperation of citizens in all parts of the State, especially of those living in its newer counties, is respectively desired. Notes of information concerning the various sections will be carefully gathered and classified. The office cannot of course discriminate in favor of local or separate interests, but it will be glad to furnish inquirers any authentic intelligence of a public character that may come into its possession; and in this work known individuals who are interested in the development of the State may render valuable assistance.

The procuring of employment and the selection of localities are not included among the duties or functions of the office. It will do all in its power to enable persons to form an intelligent judgment concerning the general features and characteristics of each county, by answering questions regarding them, and it especially recommends that individuals or colonies proposing to become residents of Michigan shall make personal inspection before deciding upon a settlement or purchase, or employ a trusted and competent agent of their own choosing to do so. "The soil of the State," said one of the professors of the State Agricultural College, in an address before a Farmers' Institute a few years ago, "often passes by abrupt transitions from one kind to a very different kind. No prudent man desiring a given kind of soil will buy a farm unseen, but will carefully examine it to see if it be the kind he seeks. For one kind of farming he desires a strong clay, for another he wants a quick and warm sand. The great variety of soils found in our State seems to show that nature designed it for a widely diversified industry." There are lands also in the State which will not repay the labors of the agriculturist. There is no county which does not contain some poor soil, and none, in which agriculture has been tested, which will not produce some good crops. There is no transaction in life that more imperatively demands the exercise of individual judgment than the selection of a home. In his retiring message to the legislature at the beginning of its biennial session in January 1883, Gov. Jerome, alluded to the work of the Commissioner of Immigration, in the following language:

"In my opening message to the legislature of 1881 I invited attention to the large number of acres of unoccupied lands which were open to settlement and cultivation, and asked authority to appoint a Commissioner of Immigration and an appropriation to carry his work into execution. Both were promptly granted, the appointment of a most efficient officer was made, and it is believed to be largely through the work of the office thus established that upwards of 50,000 settlers have been added to the agricultural class of our population during the past year. The most important agency in this lapor has been the publication and distribution of the pamphlet entitled 'Michigan and its Resources,' about 37,000 copies of which have gone abroad through the United States and Europe, together with more than 7,000 copies of pamphlets in which its substance was translated into the languages of Germany and Holland.

"The wealth of the State has been materially augmented by this action, and the sales of its unoccupied farming lands exceed in quantity those of any former year. This office, during the 18 months of its existence, has greatly broadened and deepened the public appreciation of the resources of Michigan. It has diffused through other communities and countries a more accurate knowledge of the greatness of the State than ever before existed, thus holding out attractions of the most substantial character to the best class of seekers after new homes. No less important has been its work in impressing upon the people of Michigan the realities of the development in which they have shared and whose benefits they are enjoying. The keeping within the States by this means of many citizens who were inclined to look elsewhere for places of permanent settlement has been one of the especially valuable results of the Commissioner's labors. The plan of this office contemplates making a central bureau of information concerning Michigan and its great interests, whose publications shall keep fully abreast with the growth of the commonwealth, and whose constantly augmenting

stores of information shall be accessible at all times not merely to the new comer, but to citizens of every class. Properly administered, it cannot fail to yield results of great value to the State."

In his inaugural message, delivered on the same day as the above, Gov. Begole referred to the department as follows:

"The Commissioner of Immigration is by law under the direction of the Governor, and the expenditures of his office are under the Governor's control. I am satisfied that the office, as managed, is a success, and justifies its creation by the legislature. It has not only secured a large number of intelligent emigrants from other States, but its valuable array of facts and figures, wisely distributed throughout the State, is eminently calculated to convince our enterprising and ambitious young people that Michigan is undoubtedly the least desirable State in the Union from which to emigrate."

Copies of this pamphlet will be sent on application to those who are seeking information concerning the character and resources of the State, and those who receive it having friends to whom they may desire to impart similar intelligence are invited to furnish this office with the names and postoffice addresses of such persons.

Inquiries, written or verbal, will receive prompt attention if directed to the Commissioner of Immigration, Detroit, Michigan.